



ROYAL COMMISSION
ON
INDUSTRIAL TRAINING
AND
TECHNICAL EDUCATION

REPORT OF THE COMMISSIONERS

PARTS I-II - - - 1913

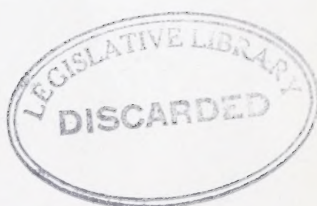
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ROYAL COMMISSION

ON

INDUSTRIAL TRAINING AND TECHNICAL EDUCATION

REPORT OF THE COMMISSIONERS

Parts I and II

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OTTAWA

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1913

ROYAL COMMISSION ON INDUSTRIAL TRAINING AND TECHNICAL EDUCATION.

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THE ROYAL COMMISSION

CANADA.

GEORGE THE FIFTH, *by the Grace of God, of the United Kingdom of Great Britain and Ireland and of the British Dominions beyond the Seas. KING, Defender of the Faith, Emperor of India.*

To all to whom these presents shall come, or whom the same may in anywise concern,

GREETING.

WHEREAS in and by an Order of Our Governor General in Council bearing date the first day of June, in the year of Our Lord one thousand nine hundred and ten (a copy of which is hereto annexed), provision has been made for inquiry by Our Commissioners therein and hereinafter named into the needs and present equipment of Our Dominion of Canada respecting industrial training and technical education, and into the systems and methods of technical instruction obtaining in other countries;

NOW KNOW YE that by and with the advice of Our Privy Council for Canada, We do by these presents nominate, constitute and appoint JAMES W. ROBERTSON, C.M.G., LL.D., of the City of Montreal, in the Province of Quebec, Esquire; the Honourable JOHN NEVILLE ARMSTRONG, of North Sydney, in the Province of Nova Scotia, Barrister at Law; the Reverend GEORGE BRYCE, M.A., D.D., LL.D., F.R.S.C., of the City of Winnipeg, in the Province of Manitoba, Minister of the Gospel; GASPARD DE SERRES, of the City of Montreal, in the Province of Quebec, Esquire; GILBERT M. MURRAY, B.A., of the City of Toronto, in the Province of Ontario, Esquire; DAVID FORSYTH, B.A., of Berlin, in the said Province of Ontario, Esquire, and JAMES SIMPSON, of the said City of Toronto, Esquire, to be Our Commissioners to conduct such inquiry.

TO HAVE, hold, exercise and enjoy the said office, place and trust unto the said James W. Robertson, Honourable John Neville Armstrong, George Bryce, Gaspard de Serres, Gilbert M. Murray, David Forsyth, and James Simpson, together with the rights, powers, privileges and emoluments unto the said office, place and trust, of right and by law appertaining during pleasure.

AND WE do further by these presents nominate, constitute and appoint the said James W. Robertson, Chairman of the said Commissioners, and Thomas Bengough, C.S.R., of the said City of Toronto, Secretary and Reporter to the said Commission.

AND WE do hereby under the authority of the Inquiries Act, Part I., Chapter 104 of the Revised Statutes of Canada, 1906, confer upon Our said Commissioners the power of summoning before them any witnesses and of requiring them to give

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evidence on oath, or on solemn affirmation if they are persons entitled to affirm in civil matters, and orally or in writing, and to produce such documents and things as Our said Commissioners shall deem requisite to the full investigation of the matters into which they are hereby appointed to examine.

AND WE do hereby require and direct Our said Commissioners to report to Our Minister of Labour the result of their investigation, together with the evidence taken before them, and any opinion they may see fit to express thereon.

IN TESTIMONY whereof We have caused these Our Letters to be made Patent, and the Great Seal of Canada to be hereunto affixed.

Witness: Our Trusty and Well-beloved the Honourable Désiré Girouard, Senior Judge of Our Supreme Court of Canada, and Administrator of the Government of Our Dominion of Canada.

At Our Government House, in Our City of Ottawa, this twenty-second day of June, in the year of Our Lord one thousand nine hundred and ten, and in the first year of Our reign.

By Command,

(Sgd.)

THOMAS MULVEY,

Under-Secretary of State.

(Seal)

(Sgd.) GIROUARD,

Administrator.

(Sgd.) A. POWER,

Acting Deputy Minister of Justice, Canada.

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P. C. 1133.

CERTIFIED Copy of a Report of the Committee of the Privy Council, approved by His Excellency the Governor General on the 1st June, 1910.

On a Memorandum dated May 28, 1910, from the Minister of Labour, stating that industrial efficiency is all important to the development of the Dominion and to the promotion of the home and foreign trade of Canada in competition with other nations and can be best promoted by the adoption in Canada of the most advanced systems and methods of industrial training and technical education.

The Minister further states that the Premiers of the several Provinces of the Dominion have expressed on behalf of the Governments of their respective Provinces, approval of the appointment by the Federal authorities of a Royal Commission on Industrial Training and Technical Education.

The Minister recommends that authority be granted for the appointment of a Royal Commission to inquire into the needs and present equipment of the Dominion as respects industrial training and technical education, and into the systems and methods of technical instruction obtaining in other countries; the said Commission to be appointed pursuant to vote No. 477 of the supplementary estimates for the fiscal period ending March 31, 1910, and to consist of the following gentlemen, viz.:—

James W. Robertson, Esq., C.M.G., LL.D., of Montreal, Que., Chairman.

Hon. John N. Armstrong, Esq., of North Sydney, N.S.

George Bryce, Esq., LL.D., F.R.S.C., of Winnipeg, Man.

M. Gaspard De Serres, of Montreal, Que.

Gilbert M. Murray, Esq., B.A., of Toronto, Ont.

David Forsyth, Esq., M.A., of Berlin, Ont.

James Simpson, Esq., of Toronto, Ont.

The Minister further recommends that the said Commissioners be instructed and empowered to pursue their investigations at such localities as may appear necessary, in the Dominion of Canada, in the United Kingdom of Great Britain and Ireland, the United States of America, France, Germany, and, subject to the approval of the Minister, elsewhere on the continent of Europe; also that the purpose of the Commission shall be that of gathering information, the information when obtained to be carefully compiled, and together with such recommendations as it may seem expedient to the Commission to make, published in a suitable report to be at the disposal of the Provinces and available for general distribution.

The Minister further recommends that the Commissioners be appointed under the provisions of the statute respecting inquiries concerning public matters, and report the results of their investigations together with their recommendations to the Minister of Labour.

The Minister further recommends that Mr. Thomas Bengough, of Toronto, be appointed secretary and reporter to the said Commission.

The Committee submit the same for approval.

(Signed) F. K. BENNETTS,

Asst. Clerk of the Privy Council.

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LETTERS FROM PREMIERS OF THE PROVINCES

COPIES OF COMMUNICATIONS INTERCHANGED BETWEEN THE HONOURABLE THE MINISTER OF LABOUR AND THE PREMIERS OF THE SEVERAL PROVINCES OF THE DOMINION.

(From the Minister of Labour to the Premiers of the Several Provinces.)

DEPARTMENT OF LABOUR, CANADA,
OTTAWA, December 13, 1909.

DEAR SIR,—The Dominion government is considering the advisability of appointing a Royal Commission to inquire into the needs and present equipment of the Dominion as respects industrial training and technical education, and into the systems and methods of technical instruction obtaining in other countries, particularly in Great Britain, France, Germany and the United States. It is intended that the commission shall be solely for the purpose of gathering information, the information when obtained to be published in a suitable report to be at the disposal of the provinces and available for general distribution.

I may say that the view of the government is that a commission of the kind suggested might render valuable services to the Dominion as a whole, since it would be in a position to conduct an inquiry on a wider and more comprehensive scale than might be considered desirable or possible in the case of the different provinces, and which if undertaken by the provinces individually must lead inevitably to the duplication and reduplication of energy and expense.

It is recognized, however, that the work of such a commission, to be of national service, should have the hearty endorsement of the governments of the several provinces of the Dominion, and I am, therefore, writing to ask if the appointment by the federal authorities of a commission of the character and scope suggested would meet with the approval of your government, and to inquire, in particular, inasmuch as some doubt has been expressed on the point, whether exception to such a course would be taken on any ground of jurisdiction.

Yours faithfully,
(Signed) W. L. MACKENZIE KING.

NEW BRUNSWICK, PREMIER'S OFFICE.
ST. JOHN, N.B., December 16, 1909.

HON. W. MACKENZIE KING,
Minister of Labour,
Ottawa, Ont.

DEAR SIR,—I beg to acknowledge receipt of your favour of the 13th instant, informing me that the Dominion Government is considering the advisability of appointing a Royal Commission to inquire into the needs and present equipment of the Dominion as regards industrial training and technical education, and into the system of methods of technical instruction prevailing in other countries, specially in Great Britain, France, Germany and the United States.

I entirely agree with the view of the government to the effect that a commission of this kind might render valuable service to the Dominion as a whole, and I have

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no hesitation in saying that the appointment by the federal authorities of a commission of the character and scope suggested in your letter would meet with the approval of my government, and no exception would be taken to such a course on any ground of jurisdiction.

Yours very truly,
(Signed) J. D. HAZEN.

OFFICE OF THE PRIME MINISTER AND PRESIDENT OF THE COUNCIL, ONTARIO,
TORONTO, December 16, 1909.

Hon. W. MACKENZIE KING,
Minister of Labour,
Ottawa, Ont.

DEAR SIR,—I have your letter of the 13th instant.

I understand the object of the proposed commission, to inquire into the needs and present equipment of the Dominion as respects training and technical education and into the system of methods for technical instruction obtaining in other countries, will be solely for the purpose of gathering information. This being so, I see no objection to the creation of the commission, and no exception will be taken to it on the part of the province of Ontario.

Yours very truly,
(Signed) J. P. WHITNEY.

PROVINCE OF MANITOBA, PREMIER'S OFFICE.
WINNIPEG, December 16, 1909.

Hon. W. MACKENZIE KING,
Minister of Labour,
Ottawa, Ont.

SIR,—I have the honour to acknowledge receipt of yours under date of December 13th, regarding the advisability of appointing a Royal Commission to inquire into the industrial training and technical education of Canada.

I appreciate the fact that education is a matter under the constitution entirely vested in the provinces and realize that it is a delicate question on which to give advice such as you solicit.

The matter is an important one and I think, in view of the rapid strides along industrial lines that the Canadian people are making, there is necessity for more attention being given to technical education than what has been the practice or custom in the past.

I shall certainly be pleased to see more interest taken in this matter and our young men better qualified for the opportunities that are offered along industrial lines by having a first-class technical education to qualify them for the responsible and important positions that are awaiting men of that quality.

I have the honour to be, sir,
Your obedient servant,
(Signed) R. P. ROBLIN,
Premier.

PRINCE EDWARD ISLAND, PREMIER'S OFFICE,
CHARLOTTETOWN, December, 18, 1909.

Hon. W. MACKENZIE KING,
Minister of Labour,
Ottawa, Ont.

DEAR SIR,—I beg to acknowledge receipt of your letter of the 13th instant regarding the advisability of the Dominion Government appointing a royal commission to

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inquire into the needs and present equipment of the Dominion as respects industrial training and technical education and into the systems and methods of technical education obtaining in other countries, &c., with the request that the matter should be considered and approved of by the government of this province, and whether exception to such a course would be taken on the grounds of jurisdiction.

In reply, I beg to say that your proposal meets with the approval of our government, and I wish to assure you that no exception will be taken upon the grounds of jurisdiction. We believe it would be in the interest of the country at large that such a commission should be appointed, and that all possible information be obtained upon a subject of so much importance.

Yours faithfully,
(Signed) F. L. HASZARD.

EXECUTIVE COUNCIL, SASKATCHEWAN,
REGINA, December 21, 1909.

Hon. W. MACKENZIE KING,
Minister of Labour,
Ottawa, Ont.

DEAR MR. KING,—I have duly received your letter of December 13, on the subject of technical education and the proposal now under consideration by your government for instituting an inquiry by a royal commission and which asks whether the proposal meets with the approval of the Saskatchewan government and whether any exception would be taken by us on the ground of jurisdiction.

I may very readily state that the Saskatchewan government will raise no objection against the proposed inquiry by the Dominion government on any grounds; on the contrary we believe that the federal government is the proper authority to proceed in the matter in the way proposed; that it is a subject which can be more efficiently, economically and effectively dealt with by the central government than by the various provincial governments; and in addition that, inasmuch as industrial training and technical instruction intimately affect trade and commerce, these branches of education ought to be viewed from the national rather than from the provincial standpoint.

Believe me,
Very sincerely yours,
(Signed) WALTER SCOTT.

PREMIER OF NOVA SCOTIA,
HALIFAX, N.S., December 23, 1909.

Hon. W. MACKENZIE KING,
Minister of Labour,
Ottawa, Ont.

DEAR SIR,—I beg to acknowledge the receipt of your letter of the 13th inst., on the subject of the advisability of appointing a royal commission to inquire into the needs of technical education.

I would be delighted to see such a commission appointed by your government; in fact, I have long advocated such a course being taken and you can accept my assurance that such a course, if adopted, will meet with the hearty approbation of the government of Nova Scotia.

Yours truly,
(Signed) G. H. MURRAY.

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PREMIER'S OFFICE, ALBERTA,

EDMONTON, ALTA., December 28, 1909.

HON. W. MACKENZIE KING,

Minister of Labour,

Ottawa, Ont.

DEAR SIR,—I am instructed by the Hon. Premier Rutherford to acknowledge receipt of your letter of the 13th in reference to the advisability of the Dominion Government appointing a royal commission to inquire into the needs and present equipment of the Dominion as respects industrial training and technical education.

I am directed by the premier to say that this project meets with the hearty endorsement and approval of his government.

Yours faithfully,

(Signed) M. J. MACLEOD.

(Translation.)

OFFICE OF THE PRIME MINISTER, PROVINCE OF QUEBEC,

QUEBEC, December 30, 1909.

HON. W. MACKENZIE KING,

Minister of Labour,

Ottawa, Ont.

SIR,—I have submitted to my colleagues of the executive council the letter you were kind enough to write to me on the 13th inst., asking me whether the government of the province of Quebec would approve the appointment by the federal authorities of a commission to make an investigation concerning technical instruction in this country.

We are of the opinion, my colleagues and myself, that anything pertaining to public education—whether the subject be special teaching or general teaching—belongs to the provinces exclusively, and I want to write you so, in order that there may be no misunderstanding on that point. As, on the other hand, you give me the assurance that the federal authorities, in instituting a commission of investigation, would simply do it with a view to help the provincial governments, by having collected information which they would later on put at the disposal of the latter, we see no objection to the appointment of such a commission.

Please accept, sir, the expression of my highest regard,

(Signed) LOMER GOUIN,

Prime Minister.

CABINET DU PREMIER MINISTRE, PROVINCE DE QUÉBEC,

QUÉBEC, 30 décembre 1910.

L'honorable M. W. L. MACKENZIE KING,

Ministre du Travail,

Ottawa.

MONSIEUR LE MINISTRE,—J'ai soumis à mes collègues du conseil exécutif la lettre que vous avez bien voulu m'adresser le treize de ce mois pour demander si le gouvernement de la province de Québec approuverait la nomination, par les autorités fédérales, d'une commission chargée de faire enquête sur l'enseignement technique en ce pays.

Nous sommes d'opinion, mes collègues et moi, que tout ce qui touche à l'instruction publique, qu'il s'agisse d'enseignement spécial ou d'enseignement général est du ressort exclusif des provinces, et je tiens à vous l'écrire afin qu'il n'ait pas de mal-entendu à ce sujet. D'autre part, comme vous me donnez l'assurance que les autorités fédérales, en instituant une commission d'enquête, n'auraient tout simplement en vue que de prêter leur concours aux gouvernements provinciaux en faisant recueillir des

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renseignements qu'elles mettraient ensuite à la disposition de ces derniers, nous ne voyons pas d'objection à la nomination d'une telle commission.

Veuillez agréer, Monsieur le Ministre, l'expression de mes sentiments bien distingués.

Le premier ministre,
(Signé) LOMER GOUIN.

CLERK EXECUTIVE COUNCIL,

GOVERNMENT OF THE PROVINCE OF BRITISH COLUMBIA, PREMIER'S OFFICE,
VICTORIA, January 15, 1910.

Hon. W. MACKENZIE KING,
Minister of Labour,
Ottawa, Ont.

DEAR SIR,—I beg to confirm my telegram to you of January 10th as follows:—

Owing to absence of Minister of Education with whom I wished to confer, regret being unable to reply sooner to your favour regarding technical education. He has now returned and an answer will be sent you promptly.

Having since then had an opportunity of consulting with the Minister of Education, I beg to state that the appointment of a commission by the Dominion to inquire into the subject of industrial training and technical instruction meets with the approval of this government.

It is not the intention of the government of this province to take exception to the course you propose on any grounds of jurisdiction.

I might add that this government will gladly afford any facilities in its power to assist in carrying out the object in view.

Yours very truly,
(Signed) RICHARD McBRIDE.

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REPORT OF THE COMMISSIONERS

The Honourable T. W. CROTHERS, K.C., M.P.

Minister of Labour.

SIR.—We, the Commissioners appointed to inquire into the needs and present equipment of the Dominion of Canada respecting Industrial Training and Technical Education, and into the systems and methods of Technical Instruction obtaining in other countries, most respectfully report to you as follows:—

The Report of the Committee of the Privy Council by which provision was made for the inquiry recommends that the “Commissioners be instructed and empowered “to pursue their investigations at such localities as may appear necessary, in the “Dominion of Canada, in the United Kingdom of Great Britain and Ireland, the “United States of America, France, Germany, and, subject to the approval of the “Minister, elsewhere on the Continent of Europe; also that the purpose of the Commission shall be that of gathering information, the information when obtained to be “carefully compiled, and together with such recommendations as it may seem expedient “to the Commission to make, published in a suitable report to be at the disposal of “the Provinces and available for general distribution.”

The Report of the Committee of the Privy Council also states “that industrial “efficiency is all-important to the development of the Dominion and to the promotion “of the home and foreign trade of Canada in competition with other nations, and can “be best promoted by the adoption in Canada of the most advanced systems and “methods of Industrial Training and Technical Education.”

We think it will be appropriate that we should state concisely what we conceive to be the duties imposed upon us by the terms of the Royal Commission.

I. We are to gather information, by inquiry into the needs and present equipment of Canada respecting Industrial Training and Technical Education.

II. We are to make investigation of the systems and methods of Technical Instruction obtaining in other countries.

III. We are to carefully compile the information obtained.

IV. We are to express any opinion that we may see fit upon the results of our inquiries and investigations.

V. We are to make such recommendations as it may seem expedient to us to make.

VI. We are to report on these matters to the Minister of Labour; all to the end that industrial efficiency may prevail for the development of the Dominion and for the promotion of the home and foreign trade of Canada in competition with other nations.

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In pursuing our inquiry in Canada, we had the advantage of carrying on our work with the fullest concurrence and co-operation of all the Provincial Governments.

THE WORKERS AND INDUSTRIES.

The inquiries included a survey of the needs of the workers in,—

1. Manufacturing and other industries such as: building construction; boots and shoes; carriages and wagons; chemicals; clothing; electrical; food stuffs; furniture; leather and rubber; metals, including rolling mills, foundries, machine shops, and machinery in general; printing and publishing; textiles and clothing; wood, and wooden wares; other industries and trades.

2. Agriculture, live stock, dairying, fruit culture; fisheries, mining, including quarries; forestry.

3. Commerce and transportation.

4. Home-making and housekeeping, including house sanitation, domestic servants, care of children.

We obtained much information regarding the general conditions of industry and labour in Canada, having regard to, (a) the growth of businesses; (b) where products are marketed; (c) where raw materials are obtained; (d) supply of labour, skilled and unskilled and apprentices; (e) child labour.

Many witnesses, some of whom had attained eminent and important places in industrial, commercial and agricultural work, gave us valuable information regarding their personal training and education. They freely expressed opinions as to its suitability, or wherein and how it might have been different with benefit to themselves and advantage to the industries and community.

The conditions under which the workers earn their wages and live out their daily lives as citizens are important factors in industrial efficiency, which, to a very considerable extent, is based upon and arises from the way in which the workers spend their leisure hours. Efficiency depends also on whether they work and live under wholesome conditions, or under conditions which depress their physical vitality and leave them less vigorous as workers, less satisfied as citizens and less useful as members of the race.

THE PRESENT EQUIPMENT.

The inquiry into the present equipment of the Dominion respecting industrial training and technical education was directed to ascertain the facts in relation thereto at or in connection with:—

1. Universities and colleges.
2. Technical schools.
3. Trade schools.
4. Agricultural and extension work.
5. Normal schools and training of teachers.
6. High schools, academics and collegiate institutes, (a) elementary science; (b) rural science; (c) manual training; (d) domestic science.
7. Elementary schools, (a) manual training; (b) domestic science; (c) rural science, including school gardens and nature study.

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8. Evening schools (a) elementary; (b) technical.

9. Correspondence courses.

10. Apprentice schools.

11. Organized play and playgrounds.

12. Physical culture and drill.

Attention was given also to the need of and the provision existing for research work.

An interim statement, which contained a summary of our work in Canada, was submitted on March 28, 1911. A copy of it is annexed hereto.

The information gathered in that part of our inquiry was definitely useful in preparing for the work that lay before us in other countries.

The full report of our inquiry into the needs and present equipment of the Dominion is submitted herewith as Part IV of this Report.

CORDIALITY OF RECEPTION IN OTHER COUNTRIES.

After completing the investigation in Canada the Commission proceeded to England, Scotland, Ireland, Denmark, France, Germany, Switzerland and the United States to inquire into the systems and methods of technical instruction in those countries.

In the United Kingdom the Rt. Hon. Walter Runciman, President of the Board of Education, Lord Pentland, Secretary of State for Scotland, and the Hon. Thomas Russell, Vice-president of the Department of Agriculture and Technical Education for Ireland, met us and extended every official courtesy, with offers of assistance from the higher officials in their departments. The Commission was greatly indebted to those officials for information as to where and how we could best see and learn what we were required to inquire into.

Among others who rendered us most friendly and valuable help in the United Kingdom, were Sir Robert Morant, Secretary of the Board of Education, and many of the officers of the department, particularly Dr. Frank Heath and Mr. A. E. Twentymann, Librarian. Sir John Struthers, head of the Scottish Education Department, favoured the Commission with a conference on the progress of the efforts for industrial and technical education in Scotland. Mr. Robert Blair, chief Education Officer for the London County Council, gave the Commission valuable and extensive assistance. He arranged for the Commission to be accompanied during its visits to technical institutions in London by inspectors who were fully conversant with what was being attempted. Mr. T. P. Gill, Secretary of the Department of Agriculture and Technical Instruction for Ireland, and other officers of the department, accompanied the Commission during its journeys in Ireland.

By the kindness of Lord Strathcona, the Rt. Hon. Lewis Harcourt, Secretary of State for the Colonies, received us and arranged through the Foreign Office for letters to the Ambassadors and other representatives of the British Government in the countries on the continent. Through them, permission was obtained from the State Education Authorities to visit schools and other institutions. The British representatives at the capitals of foreign countries extended not merely the official and routine formality of introductions, but personal attention in assisting the Commission to

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meet men and see institutions with full opportunity to learn from them.

When the Commission returned to the United States it was received at Washington by the Hon. James Wilson, the veteran Secretary of Agriculture, under whose administration great extensions of government work for the improvement of agriculture have been made.

The Commission was fortunate in the conditions under which it pursued its investigations. We were received in all countries and places with the utmost cordiality by the heads of departments, members of education authorities, principals of institutions and teachers, who were frankly communicative. We were not regarded as troublesome travellers to be got rid of as quickly as possible. After official permission to visit a school or other institution had been obtained our difficulty was not to gain admission but rather to tear ourselves away within the time which could be allotted to it. There was so much to see and the director or other teacher had so much to show and tell that the hours and days went all too fast.

INCREASE OF INTEREST IN EDUCATION.

We are constrained to record our tribute to the character of the men and women who are responsible for the organization and administration of education and of the head-masters and other teachers who carry on the class work. Courtesy, enthusiasm and ability of a high order were to the front. In them the profession of teaching is being recognized more and more as one of honour and social importance.

New buildings and equipment for technical instruction were found everywhere in evidence. The awakening of interest in this field of education in England has brought out much rivalry between different cities as to which should have the finest institutions for its young people. Nor are the attention and interest mainly devoted to the material equipment; the effort is focussed on the boy or girl, particularly between the ages of 14 and 18.

Throughout the countries visited, Continuation Classes, Technical Classes and Art Classes have become prominent features of the educational work on behalf of most of the children whose attendance at the ordinary school ends with their 14th year. For example, in the city of Halifax, England, 60 per cent of all the boys and girls who leave the Elementary Day Schools continue their education at Evening Vocational Classes and Technical Day Courses. Many other cities in England and Scotland secure attendance almost equal to that attained at Halifax. In the city of Manchester it is claimed that 3.9 per cent of the whole population of the city attend some form of Continuation and Vocational Schools while between the ages of 14 and 18.

In four-fifths of the States of Germany, for the whole State or in some States for only cities of over 10,000 population, attendance at continuation classes of some sort is compulsory between 14 and 17 years of age.

Comparing a German city with one in England or Canada one is struck by the absence from the streets in the evening of the youth of both sexes standing on street corners or wandering aimlessly about. The Vocational Classes for all sorts of workers between the ages of 14 and 17 have evidently given the people generally a liking for and satisfaction from attending classes after the ordinary elementary school days

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are over. We were told that when compulsory attendance was first required by Government action there was a good deal of hostility on the part of some employees and on the part of some of the youths themselves. After two years of experience of the classes most of the opposition disappears. Now compulsory participation in some form of educational work during the adolescent age is accepted as part of the country's civilization.

An example: In visiting an apprentices' class in one of the Continuation Schools in Switzerland we asked the lads, who had attended for two years under the compulsory regulations, to vote as to whether they would attend without the compulsory requirement. Out of a class of 31, thirty voted that they would attend voluntarily and only one did not vote. The teachers' opinion was that not more than one-third of these in that particular class would have begun to attend the Continuation School without the compulsory requirement.

MOST ADVANCED LEAST SATISFIED.

Notwithstanding the manifold evidences of progress in this new field of educational effort in England, Scotland and Ireland, one seldom hears any laudation by the people themselves of what they are doing. The refrain of nearly every comment on the educational work in England, by an Englishman, is lamentation at its backwardness compared with that of Germany. The Commission could not fully share that feeling after being over Germany and other European countries.

There was not in Germany, any more than in England, any evidence of brag or self-satisfaction. Capable men explained to the Commission the aims of the several systems and methods which were in use, and pointed out what they regarded as the weaknesses and failures of past efforts, while they dilated upon their hopes and desires for the future. Perhaps in Germany, more than in any other country, we were impressed by the apparent solidarity of the feeling of citizenship and by the fact that education did not seem to be planned or cherished as a means whereby the individual got ahead of other individuals. Education appeared to us to be regarded as a great national service whereby all the individuals are being trained towards ability for their respective occupations in the interest of the State. The personal power and wellbeing of the units of the community are looked after for the sake of the State.

'CONVERSATIONS' WITH LEADERS IN EDUCATION.

In all the countries visited by the Commission, men and women who are recognized as great leaders in educational movements discussed with us, with frankness and fulness, not only the systems and methods which at present prevail in their countries, but also the problems which face the different central and local authorities, and the plans and efforts which are being made to meet existing conditions. A feature of the Report that will be of uncommon interest and value is the information obtained and reported on as "Information obtained in 'Conversation' with" these men and women. They had knowledge and ability to express clear opinions which had been ripened out of their endeavours to meet the circumstances and discharge the duties in connection with their own work in the several countries in which they labour.

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COMPILATION OF THE INFORMATION.

In compiling the information obtained in other countries, we have been guided to a large extent by what we learnt as to the needs of Canadian workers and Canadian occupations and industries.

An effort has been made, (1) to arrange the information from each country in such a way as to show the relation of Industrial Training and Technical Education to the general system or systems of education in that country, and (2) to report with some fulness of detail upon the systems and methods, the institutions, courses and classes which seem most likely to furnish information that will be useful to Canada.

The result of that part of our inquiry is submitted in Part III of our Report.

The information and considerations on which the opinions and recommendations of the Commission are based are set forth at length in Parts II., III. and IV. of the Report.

The subjects dealt with in the several chapters of Part II. are as follows:—

- I. Elementary education in relation to industrial training and technical education.
- II. Secondary and higher education in relation to industrial training and technical education.
- III. Manual training, nature study, school gardening, household science, vocational education, industrial training and technical education.
- IV. Industrial training and technical education in relation to national problems.
- V. Industrial training and technical education in relation to the needs, duties and rights of individuals.
- VI. Organization and administration of industrial training and technical education for Canada.

Section (1) The practice in different countries.

- " (2) The correlation of courses of study to occupations.
- " (3) Influence of text-books and examinations.
- " (4) Methods of instruction.
- " (5) Qualifications and training of industrial and technical teachers.
- " (6) Scholarships and fees.
- " (7) Correspondence-study courses and travelling instructors.
- " (8) Some recommendations regarding organization and administration for Canada.

VII. A Dominion Development Policy, with recommendations of provisions,—

- (1) For those who are to continue at school in urban communities;
- (2) For those who have gone to work;
- (3) For rural communities.

VIII. Industrial training and technical education in relation to apprentices, foremen and leaders.

IX. Education for rural communities.

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- X. Schools for housekeeping occupations.
- XI. Industrial research.
- XII. Vocational guidance.
- XIII. Wider use of the school plant.
- XIV. Compulsory attendance at Continuation Classes after fourteen.

PART I

We think it appropriate and convenient to submit at this place a statement of the principal opinions which the Commission deems it fit to express, and of the recommendations which the Commission makes. We do that by assembling extracts from the aforementioned chapters of Part II. and Chapter IX. of Part III.

EXTRACTS FROM CHAPTER I OF PART II.

ELEMENTARY EDUCATION IN RELATION TO INDUSTRIAL TRAINING AND TECHNICAL EDUCATION.

At many of the places visited the local committee or other representative body, to whom the Commission was indebted for opportunities to learn what was being done in industrial training and technical education, first guided the Commission to an elementary school to show the character of the hand work which was provided for. That was the case more generally in Europe than in Canada. Out of that experience grew the conviction that a report on industrial training and technical education would not represent fairly what was being done unless it included at least a brief statement concerning the pre-vocational or trade-preparatory parts of elementary education.

SOME CONCLUSIONS.

From the testimony received it appears highly desirable in the interests of vocational efficiency,—

(1) That all children to the age of 14 years should receive the benefits of elementary general education up to at least the standards provided by the school system of the place or province where they live;

(2) That the experiences of the school should tend more directly towards the inculcation and conservation of a love of productive, constructive and conserving labour;

(3) That, after 12 years of age, for the children whose parents expect or desire them to follow manual occupations, the content of the courses, the methods of instruction and the experience from work undertaken at school should have as close relation as practicable to the productive, constructive and conserving occupations to be followed after the children leave school.

The Commission is further of opinion,—

(4) That benefits from such pre-vocational education would accrue (a) from the interest awakened in manual occupations; (b) from the discovery through their

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experiences at school to the pupils themselves, and to the teachers and the parents, of the bent of their abilities and aptitudes; and (c) from the taste and preference thus developed leading the children to follow skilled occupations for which they are suited;

(5) That further advantage would result because the interest which this form of education would arouse in the children would dispose them to desire further education after they had begun to work and cause them to keep in touch with educational effort in some form;

(6) That the time and attention devoted to pre-vocational or trade-preparatory work in no way detracts from or hinders progress in general education of a cultural sort.

IMPORTANT CONSIDERATIONS.

The kind and amount of industrial training and technical education which an individual is able to take up and profit by is determined to a large extent by the previous general education. General education is here taken to mean the formal studies in reading, writing, drawing and arithmetic, together with the experiences got from association with others in work, in play and in social intercourse, which have developed the powers of mind and body and have furnished the knowledge possessed by the individual.

Those who have this elementary general education in hand will best provide for subsequent vocational efficiency by ever bearing in mind the following propositions:—

- I. It is important that health should be protected and preserved.
- II. It is important that the harmonious growth of the powers of body, mind and spirit should be fostered.
- III. It is important that the senses, the avenues of impressions whereby knowledge is acquired in the first instance, should be trained.
- IV. It is important that ability and desire to work and play with enjoyment, intelligence, skill and energy should be developed.
- V. It is important that good habits should be formed, particularly habits of obedience, courtesy, diligence and thoroughness.
- VI. It is important that proper standards of conduct and character should be maintained and that high ideals should be followed.

The schools of Canada accomplish much towards these ends, but in order that their pupils may be prepared to profit to the fullest extent by industrial training and technical education, the evidence which has been received by the Commission requires us to submit the following suggestions regarding general elementary education, for its improvement, extension, enlargement and enrichment.

Provision should be made for,—

1. Training of the senses and muscles.
2. More and better drawing.
3. More physical culture.
4. Nature study and experimental science.
5. Pre-vocational work.
6. More and better singing.
7. Organized and supervised play and games.

RELIEF OF THE TIME-TABLE.

It is to be remembered that these suggestions do not imply the introduction of any new subjects into the course of study. The relief of the time-table from the pressure of a multiplicity of separate subjects as such is an evident necessity. The work of the school day should gradually be arranged less and less on subjects as such and more and more on occupations, projects and interests, each of which would form a centre for the correlated study of several subjects such as reading, composition, number work, writing and drawing.

These branches of education, which are here recommended, are reported upon as observed in schools in other countries. The branch of Manual Training is mentioned here as illustrative of the influence of all the others.

MANUAL TRAINING.*

It is now generally admitted that Manual Training work should have a recognized place in the course of study from the Kindergarten until about the 11th or 12th year of age, for cultural or self-realization purposes. After that the 'Manual Training' (the term is used to represent all the others) might be directed more definitely towards discovering aptitudes and tastes and developing skill and ability for some occupation.

The proportion of time devoted to work involving manual activity varies a great deal. No one rule can be adopted with advantage in all schools for all classes of pupils, but the tendency is towards not less than a quarter of the time in school from the Kindergarten up to the age of 12 being devoted to some form of handwork, in correlation with the other studies and subjects.

The arguments which have been used in favour of Manual Training have some resemblance to those which are urged on behalf of Industrial Education. They both plead for a fuller recognition of motive, as it appeals to the pupil in school work, and a better adaptation of the course of study to the large majority of the pupils in the hope of accomplishing thereby the reduction of the numbers who leave school before the completion of the elementary courses and the development of ability for industrial life.

Manual Training, or 'Hand and Eye' training has particular value in the biological function of education. It is a means of developing the sense organs and of training faculties and powers to meet the things and forces of the outer world with intelligent discriminations. Whether this results in an increase of brain power is a question elusive of proof. The evidence, however, is clear that it adds to the happiness of the pupil, causes the knowledge which he acquires to be retained and available for use, and quickens the rate of his progress in other school work.

FURTHER CONCLUSIONS.

The Commission is of the opinion,—

(1) That education should have regard to the growth of the powers of the body, mind and spirit concurrently, and that it should have regard to the preparation of

* From chapter III.

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the pupil for later life as an individual, as a working earner, as a citizen and as a member of the race;

(2) That education should be provided of a kind suitable to meet the needs arising from the changes in the nature and methods of occupations, the manner of living and the organization of society;

(3) That existing institutions, in so far as necessary, should be modified or altered and have additions made to the courses of study or kinds of work taken up;

(4) That the preparation of teachers for the new and different kind or kinds of education is a first necessity and duty in order that they may be qualified to do the new work successfully;

(5) That such improvement, extension, enlargement and enrichment as have been indicated would let the school experiences become a reasonable preparation for beginning working life and entering upon Industrial Training and Technical Education; and that without such preparation no system of Industrial Training and Technical Education can, to any considerable extent, be permanently successful.

SOME RECOMMENDATIONS.

The Commission is of opinion that the teaching of drawing, manual training, nature study, experimental science and pre-vocational work including domestic or household science in elementary schools, is of great importance and value and should be provided for generally.

Having regard to the cost of carrying on these branches in the elementary schools, until teachers are available who themselves have been taught them during their school days, and bearing in mind that such school work was not contemplated as part of public education at the time of Confederation when the Provinces accepted the responsibility of legislating for the maintenance and control of education within their borders, the Commission ventures to recommend that a fund be created from which payments would be made to the provincial governments during a period of ten years.

The Commission suggests that such a fund should receive not less than \$350,000 a year for ten years from a Dominion parliamentary grant; and that it should be divided into nine portions, in proportion to the population in each of the nine provinces as determined by the latest census, and allotted to each province accordingly.

The Commission further suggests that there should be paid to each province from said fund (if and when the amount to its credit in said fund is sufficient therefor) an amount not exceeding 75 per cent of the amount which such province had paid, during the immediately preceding fiscal year, for the promotion and support of drawing, manual training, nature study, experimental science, and pre-vocational work, including domestic or household science, but not including the provision of buildings.

It would appear to the Commission that a certificate by the chief education officer of any province, setting forth in detail the places, the work done and the sums paid by the province in furtherance of these branches, should be regarded as satisfactory evidence of the amount earned by said province.

Any portion of the fund allotted to a province which may remain unpaid or unearned at the expiration of any fiscal year should be carried forward and remain in the fund for said province until earned.

EXTRACTS FROM CHAPTER II OF PART II.

SECONDARY AND HIGHER EDUCATION IN RELATION TO INDUSTRIAL TRAINING AND TECHNICAL EDUCATION.

SECONDARY SCHOOLS.

A common criticism levelled against secondary education in Canada has been that the secondary school has tended to give the youths a distaste for manual labour and has dulled any inclination towards skilled handwork from want of opportunity to develop ability in that direction; also that it has been organized and conducted chiefly to prepare for the colleges and learned professions and does not give good preparatory training for the life and occupations of those who have to leave school at about 16 or 18 years of age.

Another criticism has arisen from the fact that the kind of education offered in the secondary schools of Canada has not been such as to appeal to the large number of boys and girls who are rather slow, or have little ability or interest, in exclusively book or theoretical studies or subjects, but who have intellectual interest and power in productive and constructive work. Experience has indicated that many youths, who are negligent, uninterested and unsuccessful in book studies and purely theoretical subjects are attentive, diligent, interested and successful in construction and expression work calling for skill of hand, closeness of observation, exercise of judgment, initiative and co-operation with their fellows.

Secondary education in Canada has been almost entirely of a sort which occupies the whole time of those receiving it. In other countries secondary or supplementary education is carried on while the young people are actively engaged in gainful occupations and following employment or learning a trade which will serve them in mature years. For example in the co-operative industrial schools of the United States, young men from 15 years of age upward attend high school and workshops, where they are employed, week about. In the continuation schools of Germany the young people engaged in gainful occupations attend continuation schools from four to ten hours per week. In several states in Germany the attendance at the school must be over before seven o'clock in the evening. Frequently the employers arrange to let the young workers free to attend the school in the morning or during the forenoon when they are fresh and most able to profit by the opportunities they have.

INDUSTRIAL TRAINING AND TECHNICAL EDUCATION OF COLLEGE GRADE.

The Commission found itself unable to make a complete study of technical education of university and college grade. It directed its inquiries in this respect almost entirely to a study of the effects of the highest forms of technical education upon progress in industry and trade, and did not attempt a thorough examination of the organization of institutions or courses of study. In France, Germany, Switzerland and the United States, the power and influence of technical education of the highest types appeared to be greater than in the United Kingdom or in Canada. In England

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the opinion most frequently heard—and it was earnestly urged—was to the effect that hereafter the industries must somehow secure the services of more men of the highest scientific attainments with thorough technical training, or her manufacturers and merchants will not be able to hold their own against foreign competition.

The faculties of applied science of colleges and universities in Canada have the reputation of preparing engineers for professional work in a thorough and satisfactory manner. From what was learned abroad the opinion appears to prevail that students in technical colleges, at some time before they graduate, should have obtained experience with materials, tools, machines and products for the purpose of giving them a clear understanding of principles and a correct knowledge of the conditions of production and construction which prevail in shops and factories. It is not important that they should have enough practice to develop either skill or speed as workmen in manipulative labour.

SOME CONCLUSIONS.

The Commission is of opinion that:—

(1) Secondary Vocational Education should be provided for those persons who are to follow manual industrial occupations, producing occupations such as agriculture, conserving occupations such as housekeeping, and commercial and business occupations.

(2) Such persons should have opportunities for acquiring secondary education which would be as fully advantageous to them in their vocations as the secondary education provided in the general school system has been advantageous to those who enter the learned professions, other professional occupations, or the leisure class.

(3) Secondary education for those who have gone to work should be provided in day and evening classes in close correlation with their occupations while they are still learners, as apprentices or otherwise, and also when they have become skilled workmen or journeymen, or have come to fill positions as foremen, superintendents or managers.

(4) Technical education for the preparation of technical engineers, and other persons being trained for professional work of a grade and rank similar to theirs, would be improved by further extensions in the directions indicated by the practice in Germany and at the University of Cincinnati. This applies particularly to the education of such men as might become principals and teachers in the middle technical schools and technical high schools in Canada. The Commission commends the consideration of this matter to the authorities of the technical colleges in the belief that they alone are qualified to render a final decision in regard to it.

The universities and colleges are providing technical courses to meet the demands from an increasing number of students. The rapid growth and development of the country, and the further application of science and scientific methods to all forms of production, construction, conservation and administration, will call for still larger numbers of graduates. In consequence the universities and colleges are sure to require increased financial support. The Commission is of opinion that this should be provided from some source without causing the fees required from students to be so high as to exclude suitable young persons who may seek the highest grade of technical instruction.

EXTRACTS FROM CHAPTER IV OF PART II.

INDUSTRIAL TRAINING AND TECHNICAL EDUCATION IN RELATION TO NATIONAL PROBLEMS.

THE NATIONAL HERITAGE.

Self-governing peoples grow ever stronger when they are animated by some dominant purpose to maintain their ideals by further achievement. The reputation of Canada is a matter of concern; its character is of much greater consequence. Its place of honour, influence and power among the nations is worth caring for; the kinds of training and instruction which determine the abilities and qualifications of its young people for working and living are of supreme importance.

Towards the end of the last century Canadians began to find themselves as a united nation of agricultural, industrial, fishing, mining, commercial and professional workers and home-makers.

Never before in the history of the race did seven millions of people have such a heritage come into their free possession. If the area of Europe is eleven, that of Canada is twelve, and much of it destined to be the setting of good homes of a robust people. Where else can be found a better place for homes for a people moved by the dominant purpose to win their way up by the strength of intelligent labour, justice and good-will, and to bring up with themselves all who may come to them?

The best that Canada has inherited is the quality of her life. The more immediate ancestors of the present generation loved liberty, cherished justice, and prized intelligence. These they had won by courage, by struggle, by patience and by privation. They left them to be improved by education.

OCCUPATIONS CALL FOR CONSTRUCTIVE, CONQUERING QUALITIES.

Occupation conserves the best that humanity has achieved. Canada is happy in occupations that minister to greatness in character. A new country needs the constructive and conquering qualities as well as the sedentary, absorbing, remembering capacities.

While the industrial development of Canada has been going on in a recognized and prodigious way in the large cities, there has been a concurrent development in the smaller places. In these latter particularly, the interests of the surrounding rural population, through its surplus of workers and through business and social intercourse, are tied up closely with the industrial progress of the towns.

BETTER TRAINING NEEDED.

Adequate training for the young, and appropriate instruction, under opportunities suited to the conditions, are needed and wanted everywhere for all industrial workers and industries.

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Making homes is much more than building houses and providing furniture, food, clothing and things. It is creating a temple, not made with hands, as a place of culture for the best in human life.

Teaching and training the young is much more than instructing them in the arts of reading, writing and reckoning—those flexible, useful tools of the intellect. Much of the time of the school has been consumed in these tasks; but one already sees in Canada the dawn of a happier day when those arts will be acquired joyfully by directed educational play instead of painfully, reluctantly and with difficulty as separate school subjects. Then a larger portion of the time and efforts of the teachers may be devoted to caring for the health and the habits and the standards of the pupils while watching and directing the development of their powers of body, mind and spirit.

CANADA IS BEHIND THE TIMES.

Until recently Canada was an interested and debating spectator of the movements for industrial efficiency. The training of young workers to deftness in manipulation and technique, and to an understanding of the principles and sciences which lie at the base of all trades and industries, was not provided for in the courses. When manufactured goods were wanted in increasing quantities and variety, and towns and cities were growing by leaps and bounds, it was discovered that there had been practically no organization of means for preparing the hundreds of thousands of young people to become the best qualified artisans, farmers and housekeepers in the world. The country's growing wealth was ample for the cost; but the educational work was becoming bookish in the extreme, and, worse than that, was developing into school systems that had few points of contact with or relation to industrial, agricultural, or housekeeping life. When boys and girls grew restless at prolonged book work, few schools provided anything in the way of tools, materials or time for 'fads,' as manual training, nature study, school gardens and housekeeping subjects were called. The deep of the ages in human life was calling to their complex instincts and aptitudes, but the schools turned a dull ear, and most of the boys left as soon as they could.

THE WAY OF NATIONAL PROGRESS.

Further advances are to be looked for through such means as these: First, those which lead young people to the achievement of joy through the processes of labour as distinguished from its wages or other rewards. Secondly, those which produce the pleasure of working together for some end believed to be good for all. Pupils and students may work themselves into industrial and social efficiency, by co-operating in productive labour, as well as play themselves into ability by means of team games. Both together are better than twice as much of either alone. Thirdly, those which yield gladness through creative, constructive, conserving work whereby each individual strives to give expression to his own concepts of utility and beauty in concrete things as well as in words and other symbols.

All life is an unceasing struggle. The point is to choose the right objects and means. In the past Canada has been winning all along the line, with an occasional

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setback. Her warfare is ever against ignorance, helplessness, poverty, disease, vice and ill-wills. Industrial and technical education is to train individuals for that warfare. Its endeavours are most successful when the experiences, which it provides for each individual, are in themselves a vital part of the hard campaign. It must ever vary its strategy and tactics and weapons, as the field of operations is moved forward. The need of the times is education to qualify all to achieve satisfaction through labour and service and good-will.

GENERAL EDUCATION CROWNED BY INDUSTRIAL TRAINING.

Industrial training and technical education serve to supplement general education and give to it a finishing course of experiences with special reference to the requirements of workers in industries, agriculture, housekeeping, commerce, transportation, mining and other occupations. They are means whereby the individual, the family, the community and the nation seek to develop the powers of the individuals for work, to prepare themselves to meet the conditions of working life, to alter these conditions in directions which seem desirable, and to conserve what is esteemed to be worth while out of the past in knowledge, customs, methods, institutions; standards and ideals.

THE STATE AND THE INDIVIDUAL.

The interest of the State, as such, is that the individuals who compose it should be healthy, intelligent, capable, animated by goodwill towards their fellows and that they should be able and willing to fill their places in the community, as citizens discharging their duties and preserving their rights, as individuals in the economy of life, and as earners contributing to the material prosperity of the State.

The problem of finding an occupation suitable to the personality of the individual, and of preparing the individual to follow it with satisfaction and with benefit to the community, is ever present and becoming more complex and difficult.

So far as the individual is concerned, education is required for the preservation of health, the development of powers, the increase of knowledge, the maintenance of justice and liberty, and the strengthening of desire and will-energy to give effect in everyday life to the concepts of duty, truth, beauty and goodness.

THE NATIONAL DEPENDS ON THE INDIVIDUAL.

Every national problem can be dealt with to the greatest advantage by intelligent and capable men and women. Intelligence and ability are fruits of education limited in extent according to the measure of inherited capacity, personal diligence and accessibility of opportunities. Training and instruction in some form are the chief means for conserving and developing the powers, capacities and characters of individuals.

As the powers and influence of individuals in matters of government—local, provincial and Dominion—become greater it becomes correspondingly necessary that each and all should have the kind and amount of education which will enable and cause them to live and work better because of it than if they had not had it.

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SOME CONCLUSIONS.

In consequence it appears to the Commission that Industrial Training and Technical Education should be provided:—

(1) In order that the interest of boys and girls in their own training and instruction might be increased and an understanding of their relation to working and living might be clearer to themselves from twelve years of age onwards.

(2) In order that the period of authoritative supervision, and of organized education to the extent of at least half a day per week, should be prolonged during adolescence, and that boys and girls should themselves desire these advantages until the age of seventeen or eighteen years.

(3) In order that all might become qualified to the full extent of their capacities to fill their places as individuals, as contributing earners, as citizens and as members of the race.

(4) In order that the nation as a whole might be more intelligent, capable and prosperous, and more united in its efforts to meet national problems and solve them wisely as they come.

The Commission holds that the large inclusive aim of Canada is that her people shall be great in character and ability, even great enough to match the matchless heritage that has come to her in blood and ideals, in possessions and institutions, in opportunities and obligations. The greatness of her composite races will come through the perfecting of the finest of all fine arts—the fine art of living happily and prosperously together *while working with intelligent skill and unfaltering will* for ends believed to be for the common good. Industrial Training and Technical Education are among the means to that end.

EXTRACTS FROM CHAPTER V OF PART II.

INDUSTRIAL TRAINING AND TECHNICAL EDUCATION IN RELATION
TO THE NEEDS, DUTIES AND RIGHTS OF INDIVIDUALS.

THE UNIT IN CIVILIZATION.

Under modern conditions the term civilization is commonly used as a bland, omnibus word to indicate the forms of organization and effort employed for the achievement of the main aims and ideals which animate and dominate a people for the time being. At present the objects are obtrusively commercial and industrial. The forms themselves are ever changing, while the inner force which uses them persists. The inner power of the people expresses itself progressively in human qualities and social and economic conditions.

In the struggle of modern industry to produce goods cheaply in order to make profits, three elements are of importance—raw materials, labour-saving machinery and organization. These three receive so much attention that sometimes the conditions of and results upon the individual workers are entirely lost sight of. The most im-

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important asset in any State is the value of the individual citizens themselves. While the conservation of natural resources and the promotion of industries are important and the development of trade has possibilities of benefit, the conservation of life and ability in the individual workers is supreme. Next to that comes the provision for conservation of opportunity for satisfactory employment.

MORE SERVICE REQUIRED FROM THE SCHOOL.

The evolution of the school has been as notable as that of any other institution. The elementary school, which came in first to supplement the training and instruction which the boy and girl received in helping their parents, has been left to accomplish nearly the whole task from six to fourteen. The demand is everywhere insistent that the schools shall meet the larger duties which are now thrown upon them by the changed social and industrial conditions.

PERSONAL WELFARE AND STATE PROSPERITY.

It becomes more and more evident that education must have a vocational aim and result if the industrial activities of the people are to be of benefit to all the individuals and to the State which they constitute. It must be kept in mind that the first and chief object of industrial training and technical education must be the personal welfare of the individuals who are to participate in it; second, the prosperity and strength of the State; and, third, the advancement and improvement of industry as such, and that only as consistent with and subordinate to the other two.

In the organization of this form of education, the attempt must be made to meet all the needs of all the people, with care that none shall be debased by the occupations for which they are prepared, and none shall be debarred from earning satisfaction, as well as satisfactory wages, from labour.

SOME CONCLUSIONS.

In the opinion of the Commission it is important:—

(1) That workers in factories whose main task is to attend or operate machines should receive instruction and training which would develop some all-round power and skill, widen their knowledge and increase their interests beyond the routine of automatic operations. By such means industrial activity would minister to the development of human life instead of subordinating it to the gain of profits without concern for the well-being and happiness of the individual workers.

(2) That such training should be provided as will conserve and develop occupations wherein skilled handicraft is required,—this for the sake of the workers as well as for the quality and character of products of certain kinds.

(3) That the interests of the rural population should be conserved and promoted as far as possible by Industrial Training and Technical Education suitable to the needs of its workers.

(4) That the needs of girls and women for organized instruction and training in the elements of the sciences and arts, which underlie successful housekeeping and

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home-making under modern industrial conditions, should be recognized and provided for. The housekeepers and the homemakers are always the mainstay of advancing civilization.

(5) That increasing attention should be given to opportunities, which now exist or which may be provided, for the conservation of life and health and for the development of human powers to the end that individuals generally may attain happiness, prosperity and contentment through intelligent labour in Canada.

EXTRACTS FROM CHAPTER VI OF PART II.

ORGANIZATION AND ADMINISTRATION OF INDUSTRIAL TRAINING AND TECHNICAL EDUCATION FOR CANADA.

STATEMENT OF AIMS.

The aims of industrial training and technical education are arranged here in an order of importance for the guidance of those who plan the courses and kinds of work to be done:—

1. The preservation of health and the vigour of life.
2. The formation of good habits.
3. The development of the sense of responsibility and duty.
4. *The preparation of the body, mind and spirit for following some useful occupation.*
5. *The cultivation of the mental powers, the acquisition of knowledge and the development of the scientific spirit with direct reference to the occupation.*
6. The promotion of goodwill and desire and ability to co-operate with others.
7. The maintenance of standards and ideals.
8. As all-inclusive and ultimate, the perfecting of the human spirit, the improvement of the quality of life itself and the betterment of the conditions of labour, leisure and living.

MEANS TOWARDS ATTAINMENT.

The full results of Industrial Training and Technical Education are to be sought through,—

1. The discipline which comes from interest in work and from co-operation with others in educational classes to at least 17 years of age;
2. The conservation of the love of work and of satisfaction in doing it well;
3. The acquisition of technical scientific knowledge, and the development of the scientific spirit;
4. The preservation and strengthening of a spirit of willingness to accept and fill one's place in organised society which implies relative positions and relative degrees of authority.

The acquisition of mere trade or craft skill is only one of the means which in education can be made helpful for reaching the larger ends. General education also

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promotes these ends; and there need be no essential difference between the aims of Industrial Training and Technical Education and those of general education. The main distinction is in the narrower field and more direct methods by which Industrial Training and Technical Education seek to provide qualification for the working or earning part of life's activity.

THE GROUND TO BE COVERED.

In the opinion of the Commission, it is important:—

1. That the needs of the individuals for knowledge, ability and skill in their vocations or occupations should be considered in all the courses of study and methods of education which are provided at public expense;

2. That from 12 years of age and onward the general and cultural education should include adequate vocational education;

3. That while the ultimate or ideal end should be kept in mind the immediate effort should be directed to meet successfully the most pressing needs of existing conditions;

4. That the effort should be directed to provide,—

(a) An adequate supply of competent instructors, as well informed and as well trained as practicable, to carry on the work which may be attempted;

(b) Courses of study and work in the several classes or institutions which would help the individual workers in connection with their occupations and thereby utilize the interest aroused to keep them in touch with educational effort and influence for development of the more purely mental qualities and moral powers;

(c) Such a system as can be most advantageously connected with the existing systems of education and existing institutions, classes and efforts.

The Commission does not recommend that the effort should be directed mainly to make Industrial Training and Technical Education fit in with the existing systems of education, existing institutions or classes, but rather to secure, as far as practicable, the co-operation of all the educational interests, in order to ensure progress in the most effective way in the shortest time and with the greatest benefit to the pupils.

The Commission would regard it as a misfortune if the aims, systems, institutions, classes or methods of different parts of education should be made to clash with each other. So long as the dominant purpose is to direct them all towards the real benefit of the pupil, of the community and of industry, they converge towards or radiate from a common centre and do not lose effectiveness and power by mutual oppositions.

The problem is not to subordinate one to an other, but to provide for all. The special aim of Industrial Training and Technical Education should not be permitted to obscure or dominate the whole aim of education, which for the individual is the perfecting of the spirit and the development of all the powers of body and mind.

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THE UNDERLYING PRINCIPLES.

The Commission is of the opinion that, Industrial Training and Technical Education in order to be of greatest benefit to individuals, to industrial development, to localities, to the several provinces and to the Dominion as a whole, should be organized and maintained in accordance with the following principles:—

1. It should be under provincial control and regulation.
2. It should receive financial support from individuals, from local authorities, from provincial governments and from the Dominion.
3. Provision should be made for active participation in its control, management and direction by individuals in the locality who would represent industries as employers and employees, agriculture, women's occupations particularly housekeeping, business and organized education.
4. It should provide educational opportunities for those who have gone to work and also for those who are able to return and devote their time for some months or years, as the case may be, to a course or courses of instruction and training.
5. It should make provision to ensure, as far as practicable, equality of opportunity for all preparing for industrial, agricultural and housekeeping occupations and for workers in such occupations.
6. It should be carried on in cordial co-operation with existing systems of education, and in such a way as to have the advantage of the use of existing buildings, equipment and teaching staff so far as these may be suitable and available.

EFFICIENCY BY FREE CO-OPERATION.

Any effort at control, by means of a proportion of members of the administrative body, based upon the relative contributions of money from provincial and local sources, could not apply advantageously to work of this kind. The end to be sought is the most efficient and economical and suitable education which can be provided; and also the maintenance of local interest and the utilization of as much as possible of the local talent and the further equipment of that talent by the experience which the individuals would gain only by participating in the administration.

An instance: A statement made in this connection by Sir John Struthers, Secretary of the Scottish Education Department, is illustrative of much that came to the attention of the Commission in the countries visited. In substance he said that the Scottish Education Department would rather have a thousand men and women in Scotland thinking and planning and striving to make the courses of study and the education meet the needs of their own communities than have ten thousand implicitly doing what the department directed.

Experience elsewhere indicates that it will be advantageous to leave the initiative, the control and administration of the general work of the school largely in the hands of the local authority. The central or higher authority should co-operate by putting at the service of the local body the full information which it alone could possess, and the benefit of inspection, counsel and advice by experts whom it only could employ. Supervision and inspection should all be directed to conserving and increasing local interest, and at the same time to maintaining high standards of work in the school, and raising these gradually as the pupils and teachers from experience are able to come up to them.

TO FIT IN WITH GENERAL EDUCATION.

In order that there might be the least amount of waste in pupils passing from the elementary or general schools into the schools or classes for industrial training and technical education, and the greatest economy in the use of buildings, plant and competent teachers already in the service of the place, it would appear desirable that the local authority administering industrial and technical education should be identical with the local authority controlling general education or in close organic association with it. If separate from the other it would seem expedient that it should be appointed either wholly by the local authority or that at least a majority of its members should be so appointed, and that they should be, persons representing industries as employers and employees, business men, in the rural districts farmers, women who are housekeepers, and educators who have practical knowledge of school administration.

THE LAY ELEMENTS TO BE REPRESENTED.

Experience in all countries indicates that it is highly desirable that the committee which has control of the courses should contain representatives of the employers and employees actively engaged in or connected with the several occupations for which the students are being prepared or in which they are engaged. The co-operation of these persons who are engaged in industry with the professional educators ensures that the courses of study provided, and the kind of work to be carried on in the school, will be such as to meet the needs of the industries, the personal requirements of the young people and also conform to the judgment of the workmen who have had experience as to what is most useful to them. Such co-operation also helps to make the work of the school not merely acceptable to the pupils and satisfactory to the parents but also to keep it in accord with the desires and judgment of the men already engaged in the several occupations.

The provision of opportunities for the development of individuals and for the training of workers for all the occupations can be accomplished only by gradual development. Only in that way can they become an economical part of the public service which contributes to the industrial, economic, intellectual and social progress of the nation.

EQUALITY OF OPPORTUNITY.

Sometimes an idea prevails that a scheme of education provides equality of opportunity by letting all who desire have access to the same classes. Equality of opportunity, to mean anything real, must have regard to the varying needs, tastes, abilities and after lives of the pupils. To be able to attend schools, whose courses are provided chiefly for those whose education can be continued until 18 or 20 years of age, does not ensure any sort of equality of preparation for occupation or for living to those who are compelled to leave at 14. Equality of opportunity to enter a school designed to prepare leaders, is not what is needed and is not what is wanted by the parents of most of the children. Equality of opportunity, to be sincere and operative, must offer opportunities of education which will serve the pupils not all the same thing, but will serve them all alike in preparing them for the occupations which they are to follow and the lives which they are to lead.

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The problem is to unite in well-ordered courses of study what has been proven thoroughly useful in formal education with what has been found really educational in industrial and technical work. The Commission indicates how that may be done in the chapter on Some Provisions in a System of Industrial Training and Technical Education.

MUST BE ATTRACTIVE AND ADEQUATE.

One of the first considerations is that the classes and courses must be attractive to the young people themselves.

Many different kinds of school work are needed to meet all the requirements of all the young workers. This statement requires to be repeated and again repeated.

The general principles now accepted as essential to the success of industrial and technical continuation schools are:—

1. That the subject matter of every course shall be directly related to the real problems of the daily life and occupation of the pupils.

2. That the pupils shall be arranged into classes so that those in one class will have common aims and purposes.

3. That the teachers shall have had practical experience in the occupations dealt with and be skilful in teaching, enthusiastic and sympathetic.

4. That the continuity of courses shall be maintained for one year at least and where practicable for several years in sequence.

5. That the schools shall be equipped with illustrative and teaching material adequate to meet the practical needs of the pupils and to appeal to their imagination and, so far as possible, to their artistic tastes.

6. That the rooms where the classes are held shall be attractive, comfortable and convenient, that the atmosphere of the place in an intellectual sense shall be encouraging and stimulating and that opportunities shall be provided for the right kind of social intercourse.

TO MEET INDIVIDUAL, INDUSTRIAL AND NATIONAL NEEDS.

The Commission recommends,—

1. That wherever practicable continuation classes should be constituted on the basis of identity or similarity of interests on the part of the pupils, rather than on the basis of ages, or academic or literary attainments. The best basis to indicate a similarity of interests is that of the occupation followed. In order that none might be excluded by their inability to join in such work as constitutes the course, it is desirable that there should be preparatory classes.

2. That the continuation classes should provide courses for the learners in the industrial, agricultural, commercial and housekeeping occupations of the community.

3. That the courses should be progressive from year to year, and that pupils should be encouraged to attend them for a period of not less than three years.

4. That continuation classes should be provided also for workmen and foremen, workwomen and forewomen, to enable them to extend their knowledge and increase their ability and skill for management and planning.

5. That schools or courses should be provided of the grade of intermediate and secondary industrial and technical education for those who are able to continue at school for from two to four years after the age for elementary education.

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6. That middle technical schools or courses (industrial, agricultural and house-keeping) should be provided for those who are able to return to school for periods of from 3 months to 3 years after having been at work until at least 17 years of age.

7. That courses of a suitable sort should be provided for highly skilled foremen and managers. These might take the form of short courses, lasting from ten days up to one month, according to the needs of the particular industry or locality.

8. That existing institutions of college rank should receive whatever additional financial support may be necessary to enable them to fill their place in a national system of industrial training and technical education.

SOURCES OF FINANCIAL SUPPORT.

In the establishment and maintenance of industrial training and technical education in the several countries visited, the proportion of financial support provided by the several authorities was so various that no general statement of a principle can be deduced from the information obtained.

In the case of countries such as England and Scotland, in which substantially the same public authorities share in the control and expense of industrial training and technical education as carry on the work of general education, the proportion contributed by the central authority is sometimes more and sometimes less than in the case of its grants towards the support of general education.

In Germany the imperial and federal government does not contribute towards the maintenance of education or exercise any control in regard to it with the exception of indicating the standard, which qualifies those who pass the examination, to enjoy the right to give one year instead of two of military service, which qualification can be attained by boys at about their 16th year.

The proportion of the cost provided by the several authorities varies in the different states of the Empire, and also in the several cities, and sometimes in the one city in the case of each institution or kind of school. In the higher or more expensive forms of industrial or technical instruction the state, being the larger and financially the stronger authority, pays the largest proportion. The reason for that lies in the fact that those who receive the higher forms of technical instruction are best qualified to serve the state and advance its interests as a whole rather than those of any particular community.

In the United States public education is provided and maintained by the organized action of communities, county or district areas and the several states. The federal government exercises no control over and contributes nothing to the support of general education. In several Acts the federal government has provided substantial financial assistance for the establishment and maintenance of state colleges of agriculture and mechanic arts.

The United States and Switzerland are the two countries visited by the Commission in which the federal government does contribute substantially towards the establishment and maintenance of industrial training and technical education. In Switzerland the maintenance of general public education is wholly a question for the Communes and Cantons, although the federal authority has begun in recent years to give grants for the maintenance of general education in needy localities. The

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federal parliament (the Bund) gives substantial grants for the maintenance of technical education and maintains the renowned Polytechnic at Zurich.

CONSIDERATIONS TO BE KEPT IN MIND.

The Commission is of opinion that the following considerations, and others of a minor character, indicate that individuals, corporations, associations, municipalities, the provinces and the Dominion should co-operate in providing financial support for a system of industrial training and technical education for Canada. The Commission has endeavoured to outline a plan whereby that may be done, with advantage to all interests concerned and injury to none, in the chapter on A Development Policy for Canada. The considerations referred to above are as follows:—

1. Since industrial training and technical education have everywhere proved advantageous to the community and the nation, it follows as expedient and proper that the state and the community should assist in providing the means of such education. Moreover since such education is of immediate benefit to the individual it may be claimed that the individual or his parents should meet part of the expense. However the interests of the community and the province predominate so much that in order to prevent any disability which the charging of relatively high fees might impose, public elementary and secondary education is substantially free to the individual. There are exceptions, but the trend is in the direction of the school, without fees, maintained by public funds. Although some of the universities and colleges charge high fees, in their case a considerable share of the total cost of education is provided either by grants from the provincial governments, revenues from endowments, or contributions from philanthropic sources.

2. The incidence of the charge for the cost of schools should have regard to the ability to pay as well as to the advantage that will result from the education. This principle should be applied in seeking a basis, which would be equitable, from which to obtain revenues to maintain industrial training and technical education. It may be assumed that the fees from pupils should not be considered as a main or important source of revenue, but should be rather for the sake of the effect on the attitude, earnestness and regularity of attendance of the pupils.

3. The cities derive the most immediate benefit from the maintenance of industrial training and technical education, and are financially better able to support it than the small communities in towns and villages and in rural districts. For both reasons a larger proportion of the total cost of industrial training and technical education might and should be borne by cities than by the smaller towns and rural communities.

4. The industrial efficiency of the individual worker is of value not merely to himself, to the particular trade at which he works, to the community in which he lives, but also to the nation as a whole. Moreover the facilities for travel and the frequent change of residence indicate that while the individual would obtain the benefit of industrial training and technical education in one locality he might follow his occupation in another that might be far distant. That would be the more common and likely because of the large and rapid growth and development of Canada.

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5. The very considerable increase in the population of Canada by immigration is throwing additional burdens for elementary education upon the communities and the provinces. The enhanced public revenues due to growth by immigration goes in a large measure into the Dominion exchequer. The increase of the volume of trade brings in larger amounts through the customs offices. This would indicate that the new financial responsibility and burdens for industrial training and technical education, on a scale large enough and generous enough to be available to all the people between the ages of 14 and 18, should be sustained in large measure by funds from the Dominion Government.

6. The work carried on by the Dominion Experimental Farms, while mostly devoted to research work by experiment, is similar to some of the technical instruction provided in other countries as a part of the educational system. The many and valuable bulletins issued, the frequent and useful addresses by members of the staff at meetings of farmers and others and the visits of thousands of farmers to the experimental farms, are all definitely intended as a means to educate the farmers into a wider knowledge of the systems and methods of farming and the principles which underlie them.

7. The work of the Dairy and Cold Storage Commissioner, the Live Stock Commissioner and the Seed Commissioner are also in very deed educational, although not nominally so.

8. Those institutions and offices, and the activities of the officers themselves, are intended to have educational results, affecting the knowledge and ability of the farming community, affecting the methods whereby their work is being carried on, and in general developing the power of the workers through intelligence and increased skill in the management of their business. That they have so affected them is written large on the progress of agriculture and the education of farmers during the past quarter of a century.

9. A Dominion Act for the granting of aid for the advancement of Agricultural Instruction in the Provinces was assented to at the session of Parliament 1912-13. Section 3 of that Act (*The Agricultural Instruction Act*) is as follows:

3. For the purpose of aiding and advancing the farming industry by instruction in agriculture, and for the purposes authorized by this Act, the following sums, aggregating ten million dollars, shall be appropriated and paid out of the Consolidated Revenue Fund of Canada during each fiscal year for the period of ten years beginning with the year ending the thirty-first day of March, one thousand nine hundred and fourteen, namely:—

During the fiscal year ending the thirty-first day of March, one thousand nine hundred and fourteen, the sum of seven hundred thousand dollars;

During the fiscal year ending the thirty-first day of March, one thousand nine hundred and fifteen, the sum of eight hundred thousand dollars;

During the fiscal year ending the thirty-first day of March, one thousand nine hundred and sixteen, the sum of nine hundred thousand dollars;

During the fiscal year ending the thirty-first day of March, one thousand nine hundred and seventeen, the sum of one million dollars;

During the fiscal year ending the thirty-first day of March, one thousand nine hundred and eighteen, the sum of one million one hundred thousand dollars; and the like sum of one million one hundred thousand dollars during each of the

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succeeding fiscal years until the expiration of the fiscal year ending the thirty-first day of March, one thousand nine hundred and twenty three; provided that any portion of any of the above sums which may remain unearned or unpaid at the expiration of any of the said fiscal years previous to the last shall be carried forward and remain available according to its apportionment for the purposes of this Act during any one or more of the succeeding years.

RESTATEMENT OF SOME PRINCIPLES.

The Commission is of opinion,—

1. That financial support should be provided by public authorities and by individuals, corporations and associations who are directly concerned and who would be likely to profit by the results to be obtained.

2. That the relative measure of support should be in some equitable proportion to the interest in the results, and the ability to pay, of the four possible classes of contributors, viz,—(a) the individuals, corporations and associations, (b) the local community such as town, city or county, (c) the province and (d) the Dominion.

3. That in determining the proportion of cost of industrial training and technical education, to be contributed by different public authorities, regard should be had not only to the benefit to the local community to be expected from industrial training and technical education, but also to the ability of the community, and to some extent to its willingness, to provide the education of an adequate kind and to a sufficient extent.

4. That it is reasonable and desirable that the public authority with the larger financial resources should meet the largest proportion of the cost for the communities where population is most sparse and the amount of taxable property per head of pupils to be educated is lowest.

5. That the prevention of progress in a locality and the lack of development in individuals, which might result from delay in providing suitable education until the local community was both able and willing to provide it in full or in a large measure, would be felt not only by the community itself but by the province and Dominion as a whole. In consequence, on economic as well as other grounds, the larger public authority, provincial or Dominion, which is able to give a large measure of financial assistance to a community weak in resources would find such a course to be an excellent investment. The development of industrial training and technical education in such a community would bring it forward into ability to take a larger share for itself in maintaining the cost of such education and other public services.

6. That the authorities by whom financial support is furnished should have sufficient cognizance of the results from it to be able to pass intelligent and fair judgment on the question of continuing or lessening or increasing the amount of support to be given.

7. That the financial support should be arranged for under such legislation as would warrant individuals and communities in deciding to devote a considerable period of time and amount of money to the evolution of industrial training and technical education. In order that plans might be made with reasonable confidence in the permanence of the undertaking, it is highly important that such provision

EXTRACTS FROM CHAPTER VII OF PART II.

A DOMINION DEVELOPMENT POLICY.

GENERAL CONSIDERATIONS.

1. It is important to adopt a plan which will secure the largest degree of *public confidence* and maintain the largest measure of *public interest and co-operation*.

2. It is important to adopt a plan which will preserve *Provincial control*, encourage *local initiative* and develop *local responsibility*.

3. It is important that there should be a *large number of persons* representing Manufacturing Industries, Trades, Commerce, Transportation, Agriculture, Forestry, Mining, Fisheries, Housekeeping and Education, *ready to take the initiative* in local undertakings and *able to co-operate* in making effective application to the needs of localities of financial grants and any other assistance. In the opinion of the Commission, a policy which would be applied wholly or mainly by directive authority from headquarters, leaving to local centres little initiative or responsibility, would not accomplish much for a long time.

4. It is important that there should be in each Province a *Central Body or Authority*, which could bring to bear on all proposals from local centres the wide knowledge and practical experience of *capable men and women* familiar with education and with industrial, agricultural and housekeeping problems. Such a Central Body would be able to supply information for the guidance of Local Authorities at the beginning of their work, and to furnish advisory assistance through experts of high ability. Through the meetings and discussions of such a Central Body the permanent officials charged with the administration would be kept in touch with public opinion as to the particular needs of localities, as to the *suitability and acceptability* of schemes proposed, and as to the practicability of having such schemes supported and carried out. The Central Body would also serve the purpose of a *clearing house* through which an intimate knowledge of the results from experience in one locality would be made available to other communities.

5. It is important to adopt a plan whereby the Dominion, the Provinces, the Localities and Individuals will *co-operate and each contribute* in some well-considered and equitable proportion *to the cost* of development undertakings. A plan of organization which provides for the financial support from Communities being properly articulated with financial grants from Central Authorities would tend to bring about *efficiency and stability*. A long time is required to realize upon educational work; and continuity of effort to meet recognized needs is essential. The plan should be such as would ensure concurrent progressive action in the same direction by the Central and Local Bodies. Provision should be made for *Efficiency Audits*, in order that each Contributing Authority may be assured that the money is being used for the purpose for which it is granted, and that the work is being well done.

6. It is important to adopt a plan which will ensure that the *national interests* as well as the local points of view will be considered.

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7. It is important that there should be a *Dominion Consultative Body*, through which the widest knowledge and experience could be put at the service of all the Provinces and thus be brought to bear on problems and undertakings of consequence to them all.

8. It is important that there should be a *Dominion Authority* competent to co-operate with Provincial Authorities, to provide *expert counsel* to any Province which might not be adequately organized or staffed to render service in that respect to all localities and industries within its borders, and to promote *scientific industrial research* and the diffusion of knowledge resulting therefrom.

THE COMMISSION'S RECOMMENDATIONS.

The Commission recommends that Local and Provincial Development Bodies be constituted as follows:—

I.—Local Urban Industrial Development Boards.

II.—Local Rural Development Boards.

III.—Provincial Development Councils.

IV.—Provincial Development Commissions.

The Commission further recommends the constitution of,—

V.—A Dominion Development Conference.

VI.—A Dominion Development Commission.

VII.—A Dominion Development Fund.

I.—LOCAL URBAN INDUSTRIAL DEVELOPMENT BOARDS.

Duties—

1. To consider by what means Industrial Training and Technical Education may be applied most advantageously to the development and improvement of workers, industries and occupations within the areas served by them severally.

2. To make proposals, applications or recommendations to a Provincial Development Council, or any other authority constituted by the Provincial Government as competent to deal with such proposals.

3. To provide and maintain Industrial Training and Technical Education by means of institutions, classes, courses or otherwise, subject to the regulations of the Government of the Province.

4. To provide Vocational Guidance for the youth of the area by such means as they may think fit.

5. To administer any Grants received for any of the aforesaid objects.

Constitution—

As provided for by each Province by Order in Council or by legislation.

Suggestions—

Each Board to be appointed preferably by the local education or municipal Authority; or if not wholly so appointed, then to the extent of two-thirds by the local Authority or Authorities, with one-third appointed by the Provincial Authority for Industrial Training and Technical Education.

Each Board to include one or more members of the Local Education Authority and to represent:—

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(1) Employers and employees in manufacturing industries, trades, commerce, mining, fisheries and transportation;

(2) Housekeeping;

(3) Education.

Having regard to the desirability of continuity of policy, appointments to be made preferably for a term of years, a proportion of the members retiring every year, and being eligible for re-appointment.

It would likely be found expedient for each Board to constitute Committees for the more effective carrying on of its work. The main divisions would obviously be industrial, housekeeping, and vocational guidance, with such further divisions or subdivisions as might be thought desirable.

II.—LOCAL RURAL DEVELOPMENT BOARDS.

Duties—

1. To consider by what means Industrial Training and Technical Education may be applied most advantageously to the development and improvement of workers, of agriculture, rural industries, housekeeping and occupations in rural communities, within the county or other area served by them severally.

2. To make proposals, applications, or recommendations to the Provincial Development Council or any other authority constituted by the Provincial Government as competent to deal with such proposals.

3. To provide and maintain Industrial Training and Technical Education by means of institutions, classes, courses or otherwise, subject to the regulations of the Government of the Province.

4. To administer any grants received for any of the aforesaid objects.

Constitution—

As provided for by the Province by Order in Council or by legislation.

Suggestions—

It would appear to be desirable, where local conditions permit, that a county area should be the area served by the Local Rural Development Board. In some cases it might be found expedient to combine one county with another, or with part of one or more other counties.

Each Board to be appointed, preferably two-thirds by the education authorities or the municipal councils of the area served, with one-third appointed by the Provincial Authority for Industrial Training and Technical Education.

Each Board to represent:—

(1) Agriculture;

(2) Industries;

(3) Housekeeping;

(4) Education.

Having regard to the desirability of continuity of policy, appointments to be made for a term of years, a proportion of the members retiring every year and being eligible for re-appointment.

It would likely be found expedient for each Board to constitute Committees for the more effective carrying on of its work. The main divisions would obviously be:

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agricultural, rural industries, and housekeeping with such further divisions or subdivisions as might be thought desirable.

III.—PROVINCIAL DEVELOPMENT COUNCILS.

Duties—

1. To consider systems and schemes of Industrial Training and Technical Education for the development and improvement of workers, industries, agriculture, housekeeping and occupations within the province.

2. To make recommendations to the Provincial Development Commission or to the government of the province in that connection.

3. To do such other things as may be required by the government of the province in relation to Industrial Training and Technical Education.

4. To make recommendations to the Dominion Development Commission.

Constitution—

As provided for by the Province by Order in Council or by legislation.

Suggestions—

Two-thirds of the members might be elected by local development boards, and one-third appointed by the Provincial Government to represent:—

- (1) Manufacturing industries, trades, commerce, mining, fisheries and transportation (employers and employees);
- (2) Agriculture and forestry;
- (3) Housekeeping;
- (4) Education.

Or

Members might be all appointed by the Provincial Government to represent interests as aforesaid.

Appointments or elections to be preferably for a term of not less than six years, a proportion of the members retiring every two years, and being eligible for re-appointment or re-election.

A Provincial Development Council would doubtless find it expedient to forward its work by means of committees such as industrial committee, agricultural committee, and housekeeping committee, with such further divisions or subdivisions as might be found desirable.

IV.—PROVINCIAL DEVELOPMENT COMMISSIONS.

Duties—

1. To consider what may be necessary for or advantageous to the development and improvement of workers, industries, agriculture, housekeeping and other occupations within the province by means of Industrial Training and Technical Education.

2. To co-operate with the Provincial Department of Education and with other authorities within the province for the organization, administration, and maintenance of Industrial Training and Technical Education within the Province.

3. To provide the service of experts for advising with local authorities and for other purposes as might be expedient.

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4. To inspect and report upon the work of all classes, schools and institutions in respect to which any grant is made from public funds for Industrial Training and Technical Education; and to make recommendations to the Provincial Government in respect to the administration of any grants or other assistance in aid of Industrial Training and Technical Education.

Constitution—

Members to be appointed by the Lieutenant Governor in Council.

V.—A DOMINION DEVELOPMENT CONFERENCE.

Duties—

1. To consider questions of Industrial Training and Technical Education for the development of the Dominion in respect to workers, industries, agriculture, house-keeping, and occupations, referred to it by Provincial Development Councils, or any other authorities constituted by Provincial Governments in this relation, and to advise each provincial authority in regard to such questions.

2. To consider and report upon questions referred to it by the Dominion Development Commission.

Constitution—

Representative members:—

(a) Elected representatives of Provincial Development Councils.

Suggested basis of representation: 3 members from each Provincial Council, plus one member for each 300,000 population or fraction thereof above 300,000 in the province as determined by the latest decennial census.

Official members:—

(b) One member of each Provincial Government or a deputy accredited by him.

(c) One member of each Provincial Development Commission.

(d) Members of the Dominion Development Commission.

VI.—A DOMINION DEVELOPMENT COMMISSION.

Duties—

1. To co-operate with provincial and local authorities, such as provincial development commissions and councils, local development boards and any other authority constituted by a provincial government for the development and improvement of industries, agriculture, housekeeping and occupations by means of Industrial Training and Technical Education.

2. To provide experts, whose services for counsel would be available to provincial and local authorities.

3. To promote scientific industrial research and the diffusion of knowledge resulting therefrom.

4. To provide and maintain and to assist in providing and maintaining central institutions to supplement the work carried on by the provincial and local development authorities, if and when such central institutions are approved by the Dominion Development Conference.

5. To make recommendations for the administration of the Dominion Development Fund.

6. To report to the Governor General in Council, or to a Department of the Dominion Government.

Constitution—

Members to be appointed by the Governor General in Council.

PROVISIONS IN A SYSTEM FOR INDUSTRIAL TRAINING AND TECHNICAL EDUCATION.

The Commission considers that the provisions which are indicated hereafter under the names of classes, courses, schools, institutes and colleges, are necessary in a system or systems of industrial training and technical education for Canada.

The plan of statement by classes (or schools) is adopted because it is believed that by this means local authorities and provincial authorities will be helped in the best way to co-ordinate the provisions which now exist with what is to be provided, in so far as that is desirable, and vice versa.

The provisions have been arranged under three main headings:—

- For those who are to continue at school in urban communities;
- For those who have gone to work in urban communities;
- For rural communities.

The provisions recommended are as follows:—

FOR THOSE WHO ARE TO CONTINUE AT SCHOOL IN URBAN COMMUNITIES.

Division I. Intermediate industrial classes (or schools).

- " II. Co-ordinated technical classes (or schools).
- " III. Technical high schools.
- " IV. Apprentices' schools.
- " V. Industrial and technical institutes.
- " VI. Technical, home economics and fine arts colleges.

FOR THOSE WHO HAVE GONE TO WORK IN URBAN COMMUNITIES.

Division I. Continuation classes (or schools).

- " II. Co-ordinated technical classes (or schools).
- " III. Middle technical classes (or schools).
- " IV. Apprentices' classes (or schools) in workshops.
- " V. Industrial and technical institutes.
- " VI. Extension Lectures and Correspondence-study courses.

FOR RURAL COMMUNITIES.

Division I. Intermediate rural classes (or schools).

- " II. Rural high schools.
- " III. Continuation agricultural classes (or schools) under resident or travelling district instructors.
- " IV. Continuation housekeeping classes (or schools) under resident or travelling district instructresses.
- " V. County or district agricultural and housekeeping schools.
- " VI. Young people's social service schools.
- " VII. Schools for agricultural apprentices.
- " VIII. Agricultural and home economics colleges.
- " IX. Correspondence-study courses.

MAKING THE MOST OF EXISTING PROVISIONS.

Some of the provisions recommended herein already exist in more or less developed and organized form in some places. In the matter of the highest institutions, such as Technical Colleges, Colleges of Agriculture and Schools of Domestic or Household Science, Canada appears to be well equipped in numbers. They could all be used to their utmost capacity and to great advantage in connection with the education of teachers and other leaders in all departments of Industrial Training and Technical Education.

It is not to be inferred that the classes (or schools) of any division require buildings, equipment or staff for themselves, wholly separate from what is required for the classes (or schools) in other divisions. Whether an institution should have accommodation and facilities for more than one kind of classes (or schools) is a matter to be decided according to local conditions. There are undoubted advantages from having classes of the different divisions (and of different kinds in the same division) in one institution, and there are advantages from having the more elementary classes in a building or buildings convenient to the homes of the pupils. Local needs, conditions and resources furnish the only adequate data for guidance in that respect.

The Commission counsels energetic action in all the provinces in arranging for the classes, and advises prudent consideration before deciding upon new and permanent buildings. A year or two of experience in provisional quarters would enable the local authority to avoid serious mistakes. Expert counsel and criticism which should be available from headquarters, would assist it to provide for its needs economically, adequately and effectively. For example, in the city of Belfast six years of creditable work were accomplished before the Municipal Technical Institute was completed. By that time its arrangements and equipment provided just the right kind of facilities. They have become a tribute to the wisdom and ability of those in charge and a model for other towns and cities.

A DOMINION DEVELOPMENT FUND.

The Commission recommends that the sum of \$3,000,000 be provided annually for a period of ten years by the Parliament of Canada and paid annually into a Dominion Development Fund.

NOTES:—

1. Not less than 75 per cent of the amount paid each year into the Dominion Development Fund, from the above source, to be divided into nine portions, in proportion to the population in each of the nine provinces as determined by the latest census, and allotted to each province accordingly for development undertakings therein. Each of the said nine portions of the fund to be administered as the, '(name of the province) Account of the Dominion Development Fund'; and the remainder of the fund to be administered as the 'General Account of the Dominion Development Fund.'

2. Any portion of the Fund allotted to a province which may remain unearned or unpaid at the expiration of any fiscal year, to be carried forward and remain in the Account of the province until required for development work within such province.

3. Any portion of the Fund in the 'General Account' which may remain unexpended at the expiration of any fiscal year to be carried forward and remain in the 'General Account' until required for development work upon the recommendation of the Dominion Development Commission.

4. Payments to be made to development authorities in any province from the funds in the account of such province and from the funds in the 'General Account' only upon the recommendation of the Dominion Development Commission.

5. In order that a provincial government or local development authority may be entitled to receive a payment from the funds in a provincial account of the Dominion Development Fund, it will be necessary:—

(a) That the *Service* (that is the development undertaking proposed by a development authority) and the *Budget*, for the fiscal year for which the payment is intended, shall have been approved by a Provincial Development Commission or other authority constituted by the provincial government for that purpose; and that a copy of said *Budget* and a copy of a certificate of approval by the provincial authority of the proposed *Service* shall have been received by the Dominion Development Commission.

(b) That such a certificate shall have been issued by a Provincial Development Commission or other authority recognized by the provincial government as competent to make an efficiency audit, to the effect that the said development authority is administering the *Service* adequately and efficiently and in accordance with the authoritative regulations; and that a copy of said Certificate of the Efficiency Audit shall have been received by the Dominion Development Commission.

6. In any case where a development authority has not maintained and carried out the *Service* (that is the development undertaking provided for in the *Budget*), adequately and with reasonable efficiency, the Certificate of the Efficiency Audit shall state the extent to which the undertaking was not maintained and carried out in an efficient and satisfactory manner; and the certificate shall also state whether the development authority is taking any steps to remedy any such deficiencies as exist.

7. If the Dominion Development Commission is not satisfied that the development authority is maintaining and carrying out the service adequately and with reasonable efficiency, it may at its discretion deduct such amount as it thinks fit from the amount of the grant from the Dominion Development Fund that would otherwise be payable, and give a certificate declaring its dissatisfaction and the amount of such deduction, and in that case only the amount of the grant so reduced shall be payable to the development authority in question.

8. Before a payment can be made for a development *Service* in the second or any subsequent year of its progress, a duly audited statement in detail of the receipts from all sources for the maintenance of the said *Service* and of the actual expenditure upon said *Service*, for the preceding fiscal year, shall have been received by the Dominion Development Commission.

9. The treasury may accept gifts into the Dominion Development Fund for all or any of the purposes for which payments may be made from the accounts of the provinces or the general account.

SUMMARY OF THE USES OF THE FUND.

Payments should be directed to secure as speedily as is practicable:—

1. The service in each province of an adequate supply of persons (teachers, instructors, demonstrators, executive officers) properly qualified to carry on Industrial Training and Technical Education.

SUGGESTION.—Seventy-five per cent of the cost of training, or of securing otherwise, might be paid.

2. The establishment or extension and maintenance of classes, courses, schools or other institutions or means for Industrial Training and Technical Education.

SUGGESTION.—A proportion of the salaries of teachers, instructors; demonstrators and executive workers, according to approved *Budgets*, might be paid, varying from one-half in cities, to two-thirds in towns, and three-quarters in villages and rural districts.

3. The provision of suitable and adequate appliances, apparatus and equipment for teaching purposes, but not including school buildings furniture or consumable supplies.

SUGGESTION.—Seventy-five per cent of approved *Budgets* might be paid.

4. The provision of scholarships to equalize opportunities to young people and other workers to profit by classes, courses, schools or other institutions.

5. The provision of experts with experience in Industrial Training and Technical Education whose services for counsel would be available to provincial and local authorities.

6. The service of central institutions when and where required to supplement the work carried on by the several provincial and local development authorities either by providing and maintaining or by assisting in providing and maintaining such central institutions.

7. The promotion of scientific industrial and housekeeping research and the diffusion of knowledge therefrom.

EXTRACTS FROM CHAPTER IX OF PART II.

EDUCATION FOR RURAL COMMUNITIES.

INTRODUCTORY.

Canada is not wholly free from anxiety regarding the movement of population from the open country into towns and cities.

The total population increased from 5,371,315 in 1901 to 7,204,338 in 1911, or 34 per cent. From 1901 to 1911 the urban population increased from 2,021,799 to 3,280,444 or 62 per cent; the rural population in the same period increased from 3,259,516 to 3,924,394 or 20 per cent. That is to say, notwithstanding the opening

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up and occupation of vast areas of virgin land in the western provinces, the total rural population of Canada increased during ten years by 664,878 while during the same period the urban population increased by 1,258,645.

A similar movement of population from the country to the towns is going on in the other countries visited, with the exception of Denmark.

Among the undisputed factors which cause a flow of population from agriculture to other occupations are: (1) the use of improved machinery, whereby the number of units of human labour required on land to produce a given quantity of food is less than formerly; (2) the desire of some farmers to leave the rural parts for towns and cities to obtain what they think to be a better chance for the education of the children; (3) the fact that money circulates more freely in towns than in the country; (4) the attractiveness to young people of the amusements and excitements afforded by town and city life.

QUALITIES OF COUNTRY LIFE AND AGRICULTURE.

Difference of opinion may exist as to remedies, but there is substantial agreement as to the desirability of having a large percentage of the population living in the country, engaged in agriculture and other rural occupations. Four chief considerations are urged in that behalf:

(1) Country life contributes to the virility of the race in body, mind and morals.

(2) Agriculture is a means of creating wealth annually out of the resources of nature without consequent exhaustion of the fertility of the soil. Countries where agriculture is centuries old, such as England, Scotland, France and Germany, report yields of crops higher on the average per acre than at any previous time in their history.

(3) Successful farming maintains a basis for prosperity in manufacturing, transportation and other businesses; and affords stable support to all prudent national undertakings.

(4) The increased cost of living in towns and cities is a pressing problem. A larger production of food in Canada might not at once reduce materially the retail prices; but the further organization of producers and consumers, for doing business closer together, would reduce the amounts which are absorbed during the progress of the food products from the farm to the consumer's table.

The chief forms of satisfaction which any worker seeks to obtain by labour are possession of material things, opportunity for social enjoyments, and pleasure from doing the work itself in addition to the wages or money returns from the product. Whatever enables the rural population to obtain worthy satisfaction in these respects is to be sought for their benefit, and likewise for the advantage of the country as a whole.

Nothing can be done by legislation to compel people to stay in the country, but much may be done by education to cause them to prefer to stay there. The saying: 'Where there is no vision the people perish' was never truer than at present in its application to the movement from the country and the attenuation of rural life in Canada.

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EDUCATION BY SELF-HELP.

Whether the movement of population, at present flowing from rural to urban areas, goes on ceases or takes an opposite direction, the rural communities for their own sakes are entitled to and must have education suited to the needs of all their members. Education cannot be conferred upon them; it may not be beneficially imposed upon them; it must be evolved by themselves by self-help, and if need be by some measure of self-sacrifice, with the co-operating assistance of governments.

The conservation of a vigorous, intelligent and prosperous population in the country stands out among the foremost duties of the whole nation; and any necessary burden of expense for that purpose might well be undertaken as a wise national investment. The practical ends to be aimed at, as likely to be effective for the accomplishment of the national objects, are summed up in the words attributed to Sir Horace Plunkett: "Better farming, better business, better living." Acceptable instruction, adequate education, capable leadership and hearty co-operation are necessary means.

In all progressive countries education is being adjusted to meet the needs of the children of the rural population, to interest them in rural life and to qualify them to follow it with advantage; and keen attention is being directed to means for the instruction and guidance of the adult population. France, Germany and Denmark are noteworthy examples of what has been done in that respect. More recently Ireland and England are bending their energies, in some measure successfully, towards the same end. The question is significantly prominent in the United States.

TEACHER SHOULD BE PERMANENT.

The Commission is aware that to carry on the Rural School in the manner suggested would require a teacher of ability, a teacher who might reasonably be expected to continue in the service of the one school for a considerable number of years. Whatever would help to bring about that condition would be entirely advantageous and wholly desirable.

Particularly in technical schools of the highest order, such as the Industrial Art Schools, and also in other technical schools abroad, not only are instructors given permission to follow the occupation or art in connection with which they teach, and to earn remuneration for themselves thereby, but they are encouraged to do so, in order that they may be kept in direct and active touch with the practical and business side of the industry or art. If a good farmer properly trained and qualified could at the same time be a teacher of the rural school, particularly the rural high school, his efficiency as a teacher and his force and influence as a leader in the locality would be increased rather than diminished. Whatever would help towards the permanency of his tenure and service as a teacher in a locality would be advantageous.

SALARIES AND RESIDENCES.

If the salaries which the people of the locality are willing to pay are not adequate to secure that end it is wise to consider what other inducements, attractions, remunerations or satisfactions might be provided for the teacher. A school residence and

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grounds, part of which might be used for garden purposes as in France, would help to retain the teacher and dispose capable young men to select teaching in the country as a permanent occupation. Particularly in the case of rural high schools, residences are an essential part of the educational equipment for rural communities, and under present conditions in Canada their erection and maintenance would be development work of great value and benefit to the state—doubtless more than development work which concerns itself only or chiefly with material resources and results from them.

The permanency of the service of teachers in Germany impressed the Commission as one of the strongest factors in what has brought about the efficiency of their schools. Whatever cost would be necessary to ensure the training of the young people into ability for rural life and towards a liking for it might be counted as a profitable investment on the part of the community and the state. Fortunate are the people who learn to use, and choose to use, their material wealth for the enrichment of life itself and the improvement of opportunities for boys and girls in the country.

THE OTHER INTERESTS TO BE CONSIDERED.

It is not enough that the adult population should be given assistance in matters directly concerned with their schools and occupations only. The experience of other countries reveals the distinction between the development of agriculture and the up-lift of rural life. Every department of rural life must be taken into account.

The problems of the farm itself in regard to crops, fertility, weeds, labour and profits are foremost. Close beside them are the problems of the farm home. More than any other calling, farming is a mode of life as well as an occupation. Here the home plays an important part in the occupation as well as in the domestic and social life of the community.

The rural school is capable of immensely greater service in ministering to the intellectual, social and spiritual needs of the population; and the instruction and training of the adolescent youth towards efficiency for rural life under educated, acceptable and capable leadership is an obligation of urgency and highest importance.

Greater facilities for, and a better public spirit towards, wholesome recreations are necessary. It is eminently important that the farming operations should be profitable; but that is not enough. It is necessary that rural life should be interesting and satisfying to young people. The exciting and even sensational entertainments and amusements of the town are a strong magnet on many natures. Competition in kind by the country in this field of distraction is neither possible nor desirable. Finer music is ever the attraction which prevails over the call of the sirens. And the taste for the pleasures of playing, working and living in the country, the capacity for helping to provide them, and the preference for staying there to enjoy them, are to be conserved and developed in youth.

CO-OPERATION IS WHOLLY BENEFICIAL.

Organized co-operation in business has been found beneficial financially, intellectually and socially. Men and women, who associate themselves for business purposes to accomplish ends for their common good, gain respect for and confidence

in each other as they come together. The natural leaders find their place of willing service for the community. The benefits to the locality are not opposed to personal advantage. Individual effort finds its best opportunity in the prosperous neighbourhood; and prosperity which is shared adds to the richness of living as well as to the wealth which is possessed.

It is high time for Canada to recognize the difference between the primitive conditions of the undeveloped country and the complexities of advanced rural life in a democratic civilization. The way to satisfaction and success in rural life is by pooling the intelligence, the business ability and the social spirit of the neighbourhood, and then, with local, provincial and Dominion assistance, to organize that illimitable fund of self-help for application to the community.

The problems and needs of one neighbourhood are in their essence substantially the same as those of a township, a county, a province and the nation. The national problem is so large that it seems beyond the capacity of any individual or organization. On the other hand the betterment of the situation in one neighbourhood is within the power of those who live there. That may be advanced by community effort, competent leadership, financial assistance, and the enthusiasm which finds from something accomplished something done, new confidence and strength for wider tasks unto the perfect day.

WHAT THE COMMISSION RECOMMENDS FOR CANADA.

RURAL ELEMENTARY SCHOOLS.

The question of prime importance is to get the teachers and courses of the rural elementary schools faced aright. A good deal is being done in several provinces, notably those which have agricultural colleges and provide special courses for rural teachers, but years of time will be required.

INTERMEDIATE RURAL AND RURAL HIGH SCHOOLS.

Early efforts should be made to establish or extend intermediate rural classes (or schools) and suitable rural high schools for pupils of both sexes from thirteen years of age upwards.

INTERMEDIATE RURAL CLASSES OR SCHOOLS.

In general the training at these schools would prepare pupils for engaging in farming and housekeeping occupations and for admission to the third year of rural high schools.

The qualifications for admission should be thirteen years of age and over and the completion of the work of the elementary school or ability to write, read, draw, and calculate to the satisfaction of the principal or committee on admission. Some of the classes would be separate for boys and girls. The courses would continue two years of five to seven months each at the school, and the rest of the year at the farm or home according to local conditions.

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The kind of work to be done at the school would provide for series of experiences in proper sequence and have regard to the conditions of farming and housekeeping in the locality.

CHIEF OBJECTS OF THE COURSE.

The object of the school would be the preparation for general farming and successful life in a rural community. The courses of work should be provided with that in view, and the methods of instruction to be followed should be subordinate to that chief aim. Too often the method of instruction in rural and other schools has been the one which seemed the best adapted to preparing pupils to pass examinations for which the chief qualification has been the possession and exercise of an excellent verbal memory. There should be the maximum of practical work arranged in proper sequence for the development of the pupil and, consistent with that, the use of books. So far as the benefit to the pupil is concerned, this minimum of time on books would likely result in the use of books in such a way as to render the student the maximum of service.

Throughout the whole course, and in all the work and study, due regard should be had to the development of a spirit and habit of good citizenship. That may best be accomplished by the student participating in forms of activity which are part of the social life of the community and of the social and intellectual life of the school as an institution.

RURAL HIGH SCHOOLS.

The rural high school, with its four year course, would give a wide basis of general training and knowledge upon which to base further study and work. It is an institution which should give an excellent and suitable education for rural life and should prepare students for admission to an agricultural college.

The course would be four years. During the first two years the work to be done would be similar to that in the intermediate rural school with the difference that the high school might continue longer each year.

Science subjects should be taught particularly in the relation of their application to rural work, rural problems and the principles underlying the systems, methods and operations of farming and housekeeping.

On the literary social and cultural side, special attention should be given to language, literature, history, physical culture, singing and such experiences as make for the enrichment and efficiency of intellectual and social life in rural districts.

In general the training at this school would prepare pupils for engaging in rural occupations and housekeeping and for admission to agricultural housekeeping and arts colleges.

SOME OF THE ADVANTAGES.

Where no provision has existed for the carrying on of systematic productive work, in connection with the organized studies at the school, the pupil has been unable to bring the different elements together for his growth in either intelligence or ability. When the subject-study has been carried on by itself, unrelated at the time to practical or manipulative work in connection with it, only a few pupils are usually able to profit by the information thus acquired. When both are carried on

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together and the pupil writes up a record of what he has observed, what he has planned or reasoned and what he has done, the record itself is both a means toward and an evidence of clear and consecutive thinking on the part of the pupil. The habit of putting ideas into written form is in itself good mental training and also puts the ideas thus expressed better within the command of the pupil.

The progress to be expected in the boy himself would be, in the main, along five lines:

(1). The development of the habit of observing and learning by trying to accomplish a definite useful piece of work in which his interest was keen and continuous.

(2). The development of practical ability from trial and experience in carrying out processes necessary to give effect to his plans; the development of skill in work and of power in managing himself with the least waste of time and strength, and in managing tools, machinery and materials to the greatest advantage.

(3). The formation of the habit of seeking information which could be depended upon to enable him to understand the principles underlying what he was planning to do and trying to do. That would be fostered by discussion with his father, the teacher and others as to how best to accomplish the desired ends, by conferences and discussions with other boys who were carrying on farming-projects, and by the study-project of reading and study arranged in proper sequence to give him a wider range of knowledge of use to him in the definite farming-project which he had in hand.

(4). The establishment of habits of forming reasoned judgments and opinions upon situations, conditions, theories, principles and methods of farm work and management.

(5). The development of will-energy to give effect to his decisions and of desire and ability to co-operate with others in useful undertakings.

RESIDENT OR TRAVELLING INSTRUCTORS AND INSTRUCTRESSES.

Resident or travelling county or district instructors for farming and housekeeping should be provided as soon as as is practicable. These instructors would carry on work similar to much of what is undertaken at present by district agricultural representatives in Ontario and Quebec. The character and extent of the work would be adapted to the conditions of the district and should follow along the lines indicated hereafter. As soon as provision is made for intermediate rural schools or rural high schools the instructors should be associated with them; they would be particularly useful in helping to co-ordinate work on the farms with the work at the schools—the agricultural projects with the educational projects.

It would be an advantage, and it has almost become a necessity, for the county or district instructor to have both suitable headquarters and an assisting staff adequate in numbers and efficient in qualifications.

As soon as the county or district instructors could be associated with Illustration Farms such as those arranged for by the Committee on Lands of the Commission of Conservation, it would be feasible to develop the various divisions of the work to much greater advantage. The Neighbourhood Improvement Associations, which co-operate with the expert in the development of the Illustration Farms, would be good local bodies with which to work.

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Different kinds of work are undertaken by the district representatives in different areas to meet local conditions and local needs. The duties of the district representative are as various as the conditions of rural life in the place. At one time the representative is required to give one or more lectures, then to carry on practical demonstrations, and again to offer practical advice on some particular farming problem. It does not seem feasible for one individual to carry on these multitudinous duties satisfactorily and effectively, particularly as in each division more and more will be expected and more and more is required.

OUTLINE OF WORK FOR A COUNTY.

The matters of first importance to be provided for in Canada at the present time are:—

(1) Visits of inspection and instruction and advice to the individual farmers on their own places.

(2) Holding field meetings with farmers in connection with field crops, fruit culture, live stock, etc.

(3) Interesting the rural teachers in rural elementary education so conducted as to serve agricultural and rural life.

(4) Arranging for and taking part in courses of instruction in elementary agriculture and school gardening for rural teachers at convenient centres.

(5) Arranging annual gatherings and exhibitions to illustrate the year's work and progress in agricultural education.

(6) Arranging for short courses of from two to four days' duration at convenient centres throughout the county or district.

(7) Arranging for longer courses of systematic instruction during four months of winter. These may take the form of the Irish short courses, being held two half days a week at each place, classes at three centres being carried on each week.

(8) Arranging and giving lectures to farmers' clubs, farmers' institutes and other local organizations.

(9) Advising by correspondence and reporting on specimens of insect pests, weeds, soils, etc., sent in for examination.

(10) Distributing bulletins and other printed matter from the Departments of Agriculture and Education.

(11) In general these instructors would carry on work similar to some of that undertaken by district representatives in Ontario and Quebec. It would be extended according to the conditions of the districts.

SCHOOLS FOR AGRICULTURAL APPRENTICES.

Such schools on the continent of Europe, in Ireland, and to a limited extent in England, pay particular attention to the training of pupils in manual dexterity and familiarity with the ordinary operations of farm work, such as ploughing, seedling, stacking, threshing, etc.

Only in the portions of Canada where settlement is comparatively new are farm schools for the purpose of teaching the ordinary farming operations necessary. In

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the older districts, before a pupil is admitted to the county or district agricultural school, he should have spent long enough at practical farm work to have learned all the operations thoroughly. At the same time it is to be remembered that the actual practice of farm work in many parts of Canada is greatly below the standard of ordinary practice in England, Scotland, Germany, France and Denmark. The remedy for this state of affairs can only be gradual and comparatively slow. It may perhaps best be brought about through the co-ordinated farming-projects in connection with the intermediate rural schools and the rural high schools. The influence and instruction of the travelling instructors would doubtless also have a marked effect on the skill and effectiveness with which the farm work is done.

FARM SCHOOLS.

The proper place at which to learn farming is a farm, managed as a business concern to provide a living and competence for the owner or worker. Farm schools, where young men would learn how to do the work of farming and the methods of management, would be advantageous for people who have come to Canada from other countries without any experience of farm work under conditions similar to those of Canada or with implements and tools like those used in Canada. Particularly in the districts which are being settled by those who come from countries whose climatic or soil conditions and farming methods are different from those of Canada, it would be advantageous if a farm such as an 'Illustration Farm' could be designated to receive such people for short courses, lasting from a week at a time up to a longer period, according to their needs.

The Commission recommends for such districts an Illustration Farm on a plan somewhat similar to those arranged for by the Committee on Lands of the Commission of Conservation. It might be the headquarters of a travelling instructor. To supplement the information and advice which such an instructor could give on their own farms, he could meet the newcomers in groups from time to time at the Illustration Farm to give illustration and demonstration of the operations and methods of farming suitable to the district and to the resources of those who are settling in it. The waste of time which often occurs, the loss of crop which sometimes ensues, and the disappointment for a period of one or more years which frequently comes to the beginner, might be in a large measure prevented. Whatever would accomplish that would be of economic advantage to the whole community, not merely from the immediate saving and prevention of loss, but from the ability, knowledge and spirit resultant in these new settlers. The benefit would be to the individuals themselves, to their community, and to the business and transportation interests.

COUNTY AGRICULTURAL AND HOUSEKEEPING SCHOOLS.

Concurrently, a beginning should be made in the establishment of county or district agricultural and housekeeping schools for young men and women from 17 years of age onwards. These would be somewhat similar in purpose and organization to the Danish agricultural schools, and the county, district or state agricultural schools of the United States. Of these latter there are now more than 100, located in 17 different states, which support them in whole or in part. They are distinct

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from the agricultural colleges. Two features distinguish these county or district agricultural and housekeeping schools. The courses are short, each is complete in itself and directly and specifically vocational for those who have already had a few years of experience in practical work; and the schools are residential.

AGRICULTURAL COLLEGES.

The agricultural colleges in Europe do not differ from Canadian agricultural colleges in such a way as to make it necessary or useful to give outlines of their courses in detail. One outstanding difference inheres in the fact that the Canadian agricultural colleges have professedly aimed to educate young men to go back to the farms to carry on farming there. Then claim credit for the extent to which they have accomplished that. On the other hand, the agricultural colleges of Europe definitely profess to train young men for professional service in connection with agricultural and rural life.

It appears to the Commission that the time has arrived when a similar aim and course should be followed at the agricultural colleges in Canada. The need for capable and thoroughly trained men is already so great that the present capacity of the agricultural colleges would not suffice to meet it for several years to come.

TO TRAIN PUBLIC SERVANTS.

To meet that need, it appears to the Commission that the agricultural colleges maintained by public funds should devote themselves chiefly to the education of those who would serve the rural community. Under present conditions it does not seem probable that any large percentage of the working farmers can be spared from their occupations or can have opportunity to take a full course at an agricultural college. The helpfulness of the agricultural college can be carried to every community through the labours, knowledge and character of men and women who are trained at the college for professional service; and it can best serve the rural population through the education of such men and women. .

The training and the education of the practical working farmer should be provided for in the elementary school, the intermediate rural classes, the rural high school, the county agricultural school, and by short courses at district centres, all of which should be easily accessible to him. The advantage to the practical working farmer, who can take a full course at an agricultural college, will be largely of a personal character for his own benefit.

This is all in line with the systems of industrial and technical education for industrial and technical workers in Germany and other countries. The working mechanic and also the foreman, in the workshop or factory, receive their education at the continuation schools, and at the lower and middle technical schools. Only those who are to become foremost leaders and directors of industry in a large way, and those who are to teach, take the full course in a technical college.

This is also in accord with the methods followed in Denmark and Germany for the education of farmers and rural communities.

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REAL SCARCITY OF TRAINED MEN.

At the present time the supply of competent men obtainable as instructors in agriculture is entirely inadequate to meet the demand. It is important that thoroughly trained men should be available. Men for this educational work need liberal education and practical experience of work similar to that of the department which they are to direct. Their general education should give them a good grounding in the natural sciences, particularly in their relation to the science and art of agriculture. They should have a good knowledge of technical and practical agricultural and farm practice, and have sound acquaintance with the important questions in economics and sociology, as applicable to rural communities. It is also important that they should have a good knowledge of the art of teaching and the underlying principles of it.

It would seem necessary that the district instructor should be a graduate of an agricultural college or have the education of a rural high school and be a graduate of the science department of an arts college. The qualification for a teacher in a rural high school or a county or district agricultural school should not be less thorough and wide.

THE FIRST DUTY OF AGRICULTURAL COLLEGES.

When the agricultural colleges devote far more attention to the training of men and women who will become teachers, instructors and executive officers in connection with the organized system of agricultural education, it will not be necessary and it may not be advantageous for them to give up their 2-year courses and shorter courses.

The holding of short courses in each agricultural college would continue to attract to the college large numbers who might not attend short courses in their own locality, and others for whom more advanced instruction could be provided at the headquarters.

It is not suggested that the agricultural colleges should drop any of the work they have been doing, but that each college should as a first duty direct its efforts to provide suitable courses for men and women required to fill the professional or official positions in connection with the further development of agriculture and agricultural education.

It would seem desirable that the 4-year courses should be specially for those who are being educated to render professional and continuous service in some public capacity; that the 2-year courses should qualify men and women for public work and also serve some who desire to return to their farms and homes; that the 1-year courses should serve also for those who are to occupy positions requiring long practical experience and acquaintance with farm management and less scientific knowledge in connection with county work and illustration farms.

TRAINING OF EXPERTS.

Particularly from the action of Germany, France, England, Ireland and the United States, it is evident that the state as a whole regards a supply of thoroughly trained and competent teachers, specialists and leaders as a prime necessity for the promotion of agricultural education and the continuous betterment of agriculture and rural conditions.

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While the Commission recognizes the excellence of the work being done at the several agricultural colleges in Canada at the present time, it is of opinion that extensions of their work are required to meet the growing needs of the agricultural population, and to be ready for the provisions recommended for education for rural communities. These extensions should be provided for at once in the following directions:—

1. Courses for the preparation of teachers qualified to carry on the science work and practical work in connection with intermediate rural schools, rural high schools and county or district agricultural schools.

2. Courses for the purpose of preparing district instructors who, in addition to technical and practical instruction in agricultural work, would receive training in the art of teaching and in the administration of affairs in rural communities.

ORGANIZATION OF LOCAL RURAL DEVELOPMENT BOARDS.

While these matters are in progress for the training of suitable men in sufficient numbers at the agricultural colleges and elsewhere for directive positions and as teachers and instructors, the organization of local rural development boards should be gone on with.

The first steps to be taken in a county, after the formation of a local rural development board, would be the making of a census survey of the numbers, ages and previous education of the young people needing further education. Early in its work of investigating and planning, the local development board should obtain the advice of an expert or experts, preferably by personal conference after having gone over the ground.

Then a statement of a proposed plan of the development service with the budget could be sent on to the provincial authority. After that, experience, discussion, counsel and co-operation would make the path to follow plain and clear.

In this way Canada could bring into full operation a system of instruction for the whole rural population more complete than has been found in any one country, but not less thorough than is required by Canadian conditions. Canada has need for it and Canada has the means and the men and women to make it effective.

EXTRACTS FROM CHAPTER X OF PART II.

EDUCATION FOR HOUSEKEEPING OCCUPATIONS.

It cannot be insisted upon too much that the occupations of the people have a far-reaching influence and effect on the quality of the national life. The homes are the units on which civilization is based and out of which it grows. For every reason it is important that the girls and young women should be given a chance to develop vocational ability for housekeeping and homemaking.

The influence of the homes on the children is direct and continuous. Good homes minister to the welfare of the people by ensuring conditions under which the

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children may be healthy, wholesome and happy, and be directed towards the exercise of right ambitions and aspirations. The effect of the homes on the level of the community is like the influence of the moon on the level of the sea. While individual achievement in any one direction may raise the person to the top, the crest of the wave is only a little above the general level ordained by gravitation and the tide. Good homes well kept keep the tide of life high for the whole of the community and the state.

OTHER COUNTRIES ARE DOING MUCH.

In European countries much attention has been given in recent years to the question of the vocational education of women, particularly for housekeeping and homemaking.

A statement of some of the provisions in Germany is given in the report on that country. In the kingdom of Prussia alone there are 50 stationary housekeeping schools, 41 itinerant housekeeping schools, and 3,751 rural continuation schools where housekeeping is taught.

In England, lessons in domestic subjects are provided for in elementary and secondary schools, and also in a number of special polytechnics, particularly for the training of teachers and leaders.

In Ireland much attention has been paid to this branch of vocational education by the Department of Agriculture and Technical Instruction.

The United States has been regarded for many years as leading in the matter of the vocational education of women. If there be any respect in which a comparison of merits might be made to the credit of Europe, it is in regard to the training and qualification of those who are appointed as teachers. The European countries follow the practice of a prolonged and thorough training of those who are to teach, whereas in the United States, as in Canada, a good deal of importance is attached to resourcefulness and ability to make a good showing to the public.

THE NATIONAL COUNCIL OF WOMEN.

In all countries voluntary associations of women have taken the lead in pressing for improvements and advances in the education of girls and women, and have thereby accomplished much. Their efforts have led to the maintenance of special classes and schools by public authorities. Most of the progress in Germany was due to the work of voluntary associations. Reference has been made in the report on Germany to the Lette-Verein and to the Swabian Women's Society and the Women's Society of Frankfurt.

In Canada several associations of women, notably the National Council of Women, have been active in seeking for the inclusion of provision for the training of girls for housekeeping and home-making in the elementary and secondary schools. Mrs. Lyle appeared before the Commission at Hamilton, Ont., with others representing the Hamilton Local Council of Women. Her statements may be taken as representative of the attitude and desire of other women who testified before the Commission.

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Some of the main features of her evidence are as follows:—

In a city like Hamilton, if the early training of the schools is to be fruitful of good results, there should be classes where girls, who do not go to the Collegiate Institute and who are obliged to earn their living, could have further instruction.

A large proportion of the girls leave school at 14 years of age when their public school course is ended, many of them going into factories and stores. The Local Council of Women would like to see day and evening classes established in the Technical School whereby girls would be enabled to continue their studies until they were qualified to enter a higher class, such as a housekeeper's course embracing every phase of work necessary in a well-ordered home. These classes should be open to the children of the well-to-do equally with the girl who works to earn her living; the former needs to supplement her school training as well as the latter.

The present difficulties in Hamilton are two:—

1. Many of the pupils, owing to various circumstances, never enter the Collegiate Institute. They are thus prevented from receiving the instruction given there.

2. The lack of training in domestic subjects prevents them from going to Macdonald Institute or Macdonald College.

The Local Council of Women would like to see service in the home lifted to the same plane as the profession of nursing. The Council does not believe the home should continue to be the only place for which special training is not regarded as necessary.

ELEMENTARY SCHOOLS.

The Commission is of opinion that preparation for housekeeping should be provided for in all the courses for girls from the age of 11 or 12 onwards. Such part of the courses would be in the nature of pre-vocational education for housekeeping. Such courses are at present provided in many of the elementary schools in all the provinces of Canada. They are provided in the supplementary courses of the public schools in Scotland, at many of the elementary schools throughout England and France.

Two departures from the usual form of organization may be mentioned: in Aberdeen the girls devoted three weeks continuously, before they left the elementary school, to practice and training in domestic subjects. Another example was a residential school maintained by the county education committee at Northampton, England. In this instance, girls in the rural elementary schools might win scholarships. These entitled them to a course of three months' practical training in the county residential school for domestic science. The whole cost to the county education committee, not including charges on capital account, was reported to amount to less than \$2 per week per pupil. The school had about 30 pupils in attendance. Other county education authorities in England have similar centres.

SECONDARY SCHOOLS.

The Commission is of opinion that it is desirable to provide secondary education for girls with particular regard to instruction and training in the preparation and serving of foods, the preparation cleansing and use of clothing, housekeeping includ-

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ing ventilation, heating, lighting and sanitary administration. This might be done at the housekeeping department of a technical high school or at a rural high school, with some co-ordination between the home and school work.

CONTINUATION CLASSES.

The Commission is of opinion that continuation classes for young women, devoted to instruction and training for housekeeping occupations, should be provided in all cities and towns. Attendance at these during at least one period per week should be continued until 18 years of age, unless the girl is receiving some other form of education. These might be arranged for in connection with, (a) the public school system, (b) a technical institute or (c) a separate school such as a middle house-keeping school.

MIDDLE HOUSEKEEPING CLASSES (OR SCHOOLS).

The Commission recommends that classes be provided for:—

- (a) Housekeepers who can devote one or more periods per week for a term of three months.
- (b) Young girls who have left school and who desire training as house-workers and home-helpers.
- (c) Women in domestic service or seeking to qualify for domestic service.
- (d) Women employed at industrial and business occupations during the day.

Courses for those who had had experience in housekeeping would be chiefly by demonstrations, instructions, lectures and reading. Particular attention should be given, as in the German schools, to the study of costs and values, to analysis and allotment of income to different classes of expenditure, and to simple bookkeeping.

The courses for those who require it should provide enough practice in cooking, sewing, millinery and housekeeping to enable them to profit in a practical way by attendance.

For those to whom it was practicable, housekeeping projects in the daily work of the home could with advantage form part of the school course.

This school might form part of a middle technical school; but it would appear desirable to aim for a separate institution under separate management.

In carrying on the work of the school a good plan might be to devote forenoons for mistresses in charge of their own homes, afternoons for young girls and for house servants and girls preparing for service, and evenings for those employed at industrial and business occupations during the day.

THE TRAINING OF HOUSE-WORKERS.

The Commission is of opinion that general provision should be made for the instruction and training of those who desire to qualify for service for wages in the homes of the people. Testimony was brought before the Commission from various quarters, to the effect that competent young women are unwilling to accept places as workers in homes because the terms 'domestic,' 'hired girl' and 'house servant' have come to be regarded as indicating a condition of social inferiority which they are unwilling to accept. It appears desirable in the interest of good citizenship to

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remove the prejudice which has thus been created, and at the same time to give the house-workers an opportunity for thorough qualification for their duties.

The Commission recommends that short courses of instruction and training in housework and housekeeping should be provided. These might be of from one to six months' duration. The pupil taking a course satisfactorily would upon examination be entitled to receive a certificate of competence as a 'home-helper' or 'house-worker' of the first, second or third class.

It is a trite saying that people are moved more by instincts, prejudice and fashion than by judgment. The harmful notion has spread and is spreading throughout Canada that the doing of housework, and serving as a home helper for pay, is less appropriate for and worthy of young women than serving as office, shop or factory workers. To eradicate that should engage the efforts of women and men who all are directly concerned with home-making and housekeeping.

RESIDENT OR TRAVELLING DISTRICT INSTRUCTRESSES FOR HOUSEKEEPING.

The Commission recommends the employment of instructresses to carry on, for the housekeeping interests of rural districts, work similar to that undertaken by the resident or travelling district instructors for farming.

1. As a beginning, a travelling instructress in housekeeping might meet a class of women, arranged for by a Women's Institute or other similar organization in the locality, one half day per week for a term of 20 weeks.

The other half of the same day the travelling instructress might carry on work with the girls and teacher in the school (elementary, intermediate or high) of the locality.

2. They should be associated when necessary, in the capacity of co-ordinators, with the housekeeping projects carried on at home by pupils attending the intermediate rural schools and the rural high school.

3. These instructresses should provide demonstration lectures in cooking and housekeeping work, chiefly as a means of directing public attention towards channels along which systematic educational work could be conducted.

4. As soon as practicable, they should be associated with the short courses of a county or district school or a middle housekeeping school.

As soon as practicable, they should be associated with the work of a Neighbourhood Improvement Association and an illustration farm for the locality, similar to those arranged for by the Committee on Lands of the Commission of Conservation.

TRAINING TEACHERS AND LEADERS.

The Commission is of opinion that advanced education for the purpose of training teachers, instructors and leaders to serve in professional capacities, should be provided in the Colleges of Household Science and Home Economics. Such colleges, by means of short and long courses, would prepare the teachers and instructors for the work of housekeeping education in cities and towns, and also educate travelling instructresses required in connection with the adult population in rural communities. Such courses would be similar to those already provided at some of the Normal
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Schools, at Macdonald Institute in connection with the O.A.C., Guelph, Ont., and at Macdonald College, Que.

In this connection it would be worth looking into the organization and courses of study at the Munster Institute, Cork, and the Central Training School of Domestic Economy, at St. Kevin's Park, Dublin. There would be advantage from a study of the courses provided and the work done at the Margaret Morrison Carnegie School at Pittsburgh, Pa. Useful information would be found also from a study of the Domestic Science, Domestic Art and Domestic Industries School in connection with Teachers' College, New York. And the highest form of training, that in the Faculty of Household Science of the University of Toronto, should not be overlooked.

EXTRACTS FROM CHAPTER IX OF PART III.

SCHOOLS FOR FISHERMEN AND SCHOOLS OF NAVIGATION.

INTRODUCTORY.

The fishery interests of Canada are important, not only because of the annual value of the catch and of the by-products, but because of the large number of men employed in them and of the population depending upon revenues from them. As illustrative of this, the following quotation is made from the testimony before the Commission of Mr. John Sinclair, M.P., and at that time Chairman of the Parliamentary Committee on Fisheries:—

No system of technical education in Nova Scotia would be complete if it did not deal in some way with the fishery industry which annually produces some eight millions. Nova Scotia stands first in all the provinces of Canada as a fishing province employing about 25,000 men, who represent 325,000, or about a quarter of the population of the province. The fishermen are scattered all along the coast in villages on the Atlantic, the Gulf, and the Bay of Fundy. The business has changed of late years by the introduction of motor boats, and it is necessary that fishermen should understand the machinery of them, and also build their own boats, as well as market and pack their catch.

That there is great room for improvement, and need of improvement, in the way in which the curing and other preparation of fish for the market is carried on, is made evident by the testimony before the Commission of Mr. Howard H. Smith of Halifax. The following are taken from his statements:—

The government should collect and distribute more intelligent information with regard to habits and movements of mackerel, herrings, cod, &c. The prevailing winds, currents, and temperature of the water all affect the bait fishes, and govern the movements of the food fishes. Our fishermen are quite ignorant of the known fact that fish are only obtainable in water of a certain known temperature, and that it is wasting time to try for them otherwise.

The Norwegian government takes a fatherly interest in the industry there and by technical education and practical demonstration secures best results for its men. Norwegians never think of setting nets for mackerel, herring, &c., without testing the temperature of the water. They split their pickled fish a few hours after capture, and wash it in running water, thereby extracting all blood, and making the flesh perfectly white; then pack immediately in expert packages, keeping the original pickle on the fish and conserving its pristine flavour. Result:—Norway mackerel commands 100 per cent more money than equally fat and exactly similar (out of the water) Nova Scotia cure.

Our fishermen put mackerel in puncheons to soak in bloody water, and pack weeks afterwards, losing the entire flavour of the fish. They economize by buying a cheap barrel which will not hold pickle. Result:—rusty, discoloured fish, worth \$6 a barrel instead of \$15. It sounds strange, but is absolutely true.

Listen to this also. A Lunenburg banker will wash 1,000 qtls. of green fish in the same water, in order to save a few barrels of refuse for fertilizing:—value, 50c. per barrel, total,

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\$2.50; and deteriorate value of catch 50c. per quintal, total, \$500; net loss, \$497.50. I can prove the absolute truth of this happening time and again. The old fishermen refuse to change their antiquated methods; the government will have to educate the young by training several brainy, enthusiastic young men who will devote their time to teaching up-to-date methods to the fishermen and their children.

The same question as applied to another kind of fish was touched upon in the testimony of Dr. Edward Prince, Dominion Commissioner of Fisheries. In reference to herring he said that several schemes had been attempted by the government for the improvement of the curing and packing of them.

One was to improve the salt sea herring of Canada, packed in barrels which only brought \$3 or \$4 a barrel while Scotch cured herring realized from \$10 to \$15 a barrel. When the question was put as to why Canadian herring were so low in price and so little esteemed, it was said that they were inferior fish; that our Canadian herring are not equal to Scotch herring when in the sea; that the fresh Scotch herring is a better fish. On my suggestion to the Minister of Marine and Fisheries, it was arranged to bring out an expert curer and cooper to make barrels, and six or eight curers who gut the herring—what we call 'gutters' in Scotland—and they were stationed at Canso and down at Clark's Harbour. They also went out to British Columbia and different points. They fixed up a small curing establishment and put up herring. A great many fishermen went there and saw this, and the result of the experiment was that herring quite equal to any cured herring in the world were produced out of our Canadian herring. Good barrels of herring were put up and shipped away to New York, some to St. Petersburg, etc.

SOME CONCLUSIONS.

From the testimony submitted to the Commission, the needs of those directly engaged in fisheries appear to be of two kinds. One is connected with the catching, curing, packing and marketing of fish, and the other with the managing of engines or other machinery used in modern vessels and having sufficient knowledge of navigation.

The Commission is of opinion that, in the interests of the fishermen and the fisheries of Canada, further improvements and extensions of what at present is being done should be made by the following means:—

1. The issuing of simple and well illustrated bulletins for the service of fishermen, similar in plan to those issued by the experimental farms and agricultural colleges.
2. The employment of travelling instructors to give short courses of demonstrations suitable for fishermen at centres easily accessible to them.
3. The provision of short courses of from one to two weeks' duration similar to those which are described as being given at Piel, near Barrow-in-Furness, England, and at Aberdeen, Scotland.
4. The inclusion of nature study, in connection with marine life and fishing, and some suitable practical work for the pupils in the elementary and secondary schools in fishing communities.
5. The provision of winter schools for fishermen having courses of instruction of two kinds, one kind dealing chiefly with the life and habits of fish, methods of catching, curing, packing and marketing; the other kind dealing with matters of navigation, and including courses of instruction in the use of engines, machinery and mechanical plant used in the industry.
6. The establishment of one or more central schools (a) for the maritime provinces, (b) for the St. Lawrence, (c) for the Great Lakes, (d) for the Pacific Coast,

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to provide courses of instruction similar to the winter schools, but more advanced in character.

After a time one or more of these central schools might provide the highest forms of scientific instruction for those who would be required as technical experts. Either the winter schools or these central schools, if located near a fish hatchery, could be used for the technical and scientific instruction of hatchery officers.

ACKNOWLEDGMENTS.

We have already stated that we had 'conversations' with many men and women, eminent and wise in educational affairs, in the several countries visited. We appreciate most heartily the service they rendered us and we venture to hope that, by means of the publicity given to the information contained in the report of these 'conversations,' they may render useful service to very many persons in our country and perhaps even wider service in their own. We recognize that their contributions form one of the most valuable of the constituent elements of the whole Report.

We regret that one member of the Commission, M. Gaspard de Serres, of Montreal, was unable to accompany the Commission during its inquiries in Europe and the United States. During such periods his place was filled by Mr. Ernest Belanger, B.A. Sc., of Montreal. We desire to record our appreciation of the diligence, thoroughness and ability with which Mr. Belanger assisted the Commission in the discharge of its duties. He rendered valuable help in preparing the report of the inquiry in France.

During part of the inquiry in the United Kingdom and on the continent of Europe the Commission was accompanied by Mr. Frederic H. Sexton, Director of Technical Education and Principal of the Nova Scotia Technical College. Principal Sexton was sent abroad by the Government of Nova Scotia and his expenses were paid by that Government. He made application to be permitted to accompany the Commission. That was granted on the understanding that it would continue and extend only so far as it would not hinder, or interfere in any way with, the work of the Commission. As a matter of fact the company of Professor Sexton, during the whole period his time permitted him to be with us, was a distinct advantage and benefit to the Commission, particularly during the inquiry in Germany. We wish to record our appreciation of Professor Sexton's professional ability and his helpfulness and geniality.

We cannot speak too highly of the diligence and the good service rendered continuously by Mr. Thomas Bengough, C.S.R., Toronto, Secretary and Reporter to the Commission.

OUR FINAL WORD.

From all the Commission learned in its survey of industrial, housekeeping, agricultural and educational conditions, it does not appear that the present generation can fully discharge its obligations for life and other heritages, or enter upon the full enjoyment of its rights and opportunities, by mere payments of money for education. The various forms of education must be supported more than they have been by the

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personal effort and service of parents and others. These must be given on behalf of the instruction and training of the young, together with adequate financial support of schools.

As a final word, we wish to express our appreciation of the opportunity that has come to us to render a great and lasting service to Canada, and to acknowledge the unfailing consideration which has been extended to us by the Minister of Labour and his department.

All of which we most respectfully submit.

Dated at Ottawa, the 31st day of May, 1913.

JAS. W. ROBERTSON,

Chairman.

JOHN N. ARMSTRONG,

GEORGE BRYCE,

G. DE SERRES,

G. M. MURRAY,

DAVID FORSYTH,

JAMES SIMPSON.

THOS. BENGOUGH,

Secretary.

INTERIM STATEMENT BY THE COMMISSION.

OTTAWA, March 28, 1911.

To the Hon. W. L. MACKENZIE KING,
Minister of Labour.

SIR,—We have the honour to submit to you a statement of the work of the Commission to this date. It has been arranged as follows:—

- I. The plan of work adopted by the Commission and a summary of the inquiry conducted.
 - II. The equipment found throughout Canada in respect to industrial training and technical education; and
 - III. A survey of the testimony received at the sessions of the Commission.
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I. THE PLAN OF WORK ADOPTED BY THE COMMISSION AND A SUMMARY OF THE INQUIRY CONDUCTED.

It is considered unnecessary to recite the steps which led up to the appointment of the Commission by the Government of the Dominion, but for the sake of clearness and completeness a copy of the order in council and of the Commission itself is attached hereto. Copies of the correspondence which passed between yourself, as Minister of Labour, and the premiers of the several provinces in respect to this matter have also been attached.

The several members of the Commission, having been notified of their appointment, were invited to meet you as Minister of Labour at the Department of Labour on July 6, 1910. All the members, together with the secretary and reporter to the Commission, were present. After hearing from you a statement giving an outline of the work expected to be done by the Commission and the nature of the inquiry it was to conduct, the Commission was duly constituted, and immediately proceeded to make plans for carrying out the duties assigned to it by the Commission itself, as well as by the directions given by you.

It was decided to visit the chief industrial and commercial centres throughout Canada, beginning at Halifax, N.S., and crossing the Dominion to Vancouver Island. Itineraries were duly drawn up and notifications of the intended visit of the Commission were sent in advance to the mayor, to the president or chairman of the board of trade, and to other persons in each locality directly engaged in, or concerned with, the industries and education.

Our duty, as set forth in the order in council and in the Commission itself, requires us to make full investigation into the matters of industrial training and technical education, in so far as these can promote industrial efficiency, which 'is all important to the development of the Dominion and to the promotion of the home and foreign trade of Canada in competition with other nations.' In the discharge

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of that duty the Commission has given our attention to the manufacturing industries, to agriculture, to domestic occupations, to mining, to the fisheries, to the lumber interests, to the building trades, to the transportation services, as well as to the technical training required for commercial operations.

The Commission has also made inquiry into the needs of existing industries in respect of labour, the quality of labour which is available, and requirements of such labour for industrial training and technical education.

The Commission began its work of inquiry at Halifax, N.S., on July 18, 1910. It continued to visit places in the maritime provinces until August 26. After that date the chairman left the Commission for a time to fulfil an engagement he had with the government of Newfoundland. At the same time other members of the Commission went to the Canadian National Exhibition at Toronto.

Between August 30 and September 16 the Commission did its work in two divisions, and visited fourteen of the smaller industrial towns in the province of Ontario.

On September 19 the Commission as a whole reassembled at Montreal. That week was devoted to Montreal, Macdonald College and Quebec city. Conferences were held with representative men and women at Montreal, and arrangements duly made for the presentation, at a later date, of testimony from the various interests concerned with industrial training and technical education in Montreal and its neighbourhood.

On September 26 the Commission resumed its itinerary in the province of Ontario.

From November 1 until the first week of December the Commission visited places in Western Canada, beginning at Port Arthur, Ontario, and ending at Victoria, B.C.

On the return journey the members visited cities in the Western States where trade schools and other methods of industrial training had been established. A list of the places visited is submitted together with some notes on the institutions which were examined. The full report on these will be included with the reports of the visits of inquiry to the United States, to be made after our return from Europe.

During January and part of February the Commission revisited Toronto, carried out its inquiry at Sault Ste. Marie, Ontario, and in places in the province of Quebec; and held final sessions at Ottawa.

The Commission has visited 100 places (cities, towns and important localities). It has held 174 sessions to receive testimony. It has transcripts of the evidence of 1,470 men and women. Written memoranda were requested from or offered by a number of these witnesses. One hundred and eighty such documents have been received and are on file with the Commission; others are still coming to hand.

In every province the Commission requested an opportunity to wait upon the Provincial Government, and it was received by the Premier with other members of the provincial cabinet, or by some member of the cabinet designated by the Provincial Government to receive us. As directed by you, the chairman conveyed to the Provincial Governments the message expressing the appreciation of the Dominion Government of the offers of co-operation and assistance which had been extended by the provincial authorities to the Commission. In every province the Commission received, not merely assurances of good will, but had the benefit of willing and helpful co-operation.

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The halls or rooms for the holding of the sessions had been arranged for in every case by the local authorities. The following instances are illustrative of the other places:—

Halifax, N.S.—Provincial Technical College.

St. John, N.B.—Board of Trade Rooms.

Fredericton, N.B.—Chamber of Legislative Assembly.

Charlottetown, P.E.I.—Chamber of Legislative Assembly.

Montreal, P.Q.—*City Council Chamber.

Quebec, P.Q.—City Council Chamber.

Toronto, Ont.—City Council Chamber.

In the several localities the Commission visited industrial establishments and educational institutions during either the forenoon or afternoon or both. Sessions for receiving testimony were held during the evening; and when necessary, also during the afternoon or forenoon, instead of visits for observation. The Commission was usually met on its arrival by the mayor of the place and the members of a reception committee, representing the city or Town Council, the Board of Trade, the Manufacturers' Association, the educational institutions and the labour organizations.

As a rule the local authorities provided the vehicles—usually automobiles—for getting around to the various establishments. These were always provided free of cost to the Commission.

The first session at each place was opened by the reading of the King's Commission. Then followed a brief address of welcome and a statement of the general character of the city or town in respect to industries and education, by the mayor or chairman of the reception committee. The chairman of the Commission made a brief statement explanatory of the object of the Commission, and the way in which its inquiries were conducted. Usually a list had been obtained from the local committee of representative men and women, who were prepared to testify regarding the need and present equipment of the place in respect to industrial training and technical education. The statements were taken under oath or solemn affirmation. The information was usually secured by means of question and answer. The chairman conducted the examination in chief and each of the other Commissioners in turn asked questions as he saw fit. The witness was given an opportunity to make any statement bearing on the matters inquired into, and to supplement his oral testimony by a written statement. Many of the persons occupying the most important positions in industrial activities and educational administration were requested to furnish written memoranda. Opportunity was given to any person who desired to offer testimony, either orally or in writing. No one was summoned officially to appear before the Commission. Invitations were extended to representative men and women. Those who have testified did so with evident frankness, and appeared satisfied that they had thereby contributed something useful in respect to industrial training and technical education, and in regard to the needs of the industries and the needs of the young people and workers of the locality.

The members of the Commission have been impressed by the numbers of thriving industries in comparatively small towns. Throughout all the eastern provinces many

* Sessions held also at the Monument National, McGill University and the Board of Trade

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establishments were visited, from which the products were being shipped throughout the whole of Canada. These towns enjoyed no special shipping facilities or any apparent advantages in regard to cheap power or nearness to raw material. The enterprise, ability and energy of a few men have enabled them to make the beginning upon a small scale from which businesses employing from 50 to 200 persons have grown up. Factories were situated where abundance of fresh air and light prevailed, and where the workmen could provide homes under favourable conditions for their children. As instances, we mention a furniture factory located at Windsor, N.S., with its products being shipped throughout Canada, nearly one-half to the west of Winnipeg, and a portion to Newfoundland. Windsor, N.S., is not even on the main line of a through railway.

At Truro, N.S., there is a cap factory, reported to be turning out nearly one-half of the caps required by the Canadian trade, making headway under all existing competitions.

At Charlottetown, P.E.I., a machine shop was turning out gasoline engines, one-half of which were being shipped west of Winnipeg. About 100 men were employed and they were working overtime.

At Sackville, N.B., a stove works was doing a local trade and also supplying its products throughout the Northwest. The manager stated that the cooler temperature of summer and the other favourable conditions for the workmen gave sufficient advantage to enable him to increase the business.

At Fredericton, N.B., a shoe factory employing over 100 persons was shipping boots and shoes to Montreal, to Moosejaw and other points in the West.

At Victoriaville, Que., we found four prosperous industries—furniture, chairs, iron bedsteads, clothing—all reported to have grown up within seven years. The products from each were being shipped all over Canada, in each case about one-half to points west of Winnipeg. We saw one carload at each of two factories loaded for Vancouver, B.C.

Instances of similar development and extension of trade could be cited from a score of places in Ontario. Those mentioned are typical and not exceptional. It has been made evident that the industrial development of Canada has not been going on only in the larger towns and cities.

The Commission observed the establishment and growth of comparatively new industries whose managers testified that they required increasing numbers of highly skilled and technically trained workers, as for example, electrical works and automobile factories.

II. THE EQUIPMENT FOUND THROUGHOUT CANADA IN RESPECT TO INDUSTRIAL TRAINING AND TECHNICAL EDUCATION.

Provisional summaries have been made of the information obtained regarding the present equipment of the Dominion respecting industrial training and technical education. These are arranged as underneath and are submitted herewith:—

A. Universities, colleges, and experiment stations.

B. The equipment and courses at secondary schools and public schools with particular reference to shopwork, manual training, domestic science and nature study with school gardens.

C. Night schools and evening classes for industrial training and technical education.

A provisional survey of what is contained in these summaries indicates that at many places in Canada, as enumerated in them, a good beginning has been made.

There is hand work of some sort—hand-and-eye training—in the elementary grades of many schools from the kindergarten up. In a number of towns there are courses in manual training and household science; and other places are planning to introduce them. That is part of general education for development, for culture and for citizenship; and it is also preparatory education to which industrial training and technical education will piece on without waste.

A beginning has been made in technical education in secondary schools in Montreal, Toronto, Hamilton, Sault Ste. Marie and Halifax. Technical and commercial high schools in Montreal and Toronto are carrying on day and evening classes. The evening classes are attended almost wholly by young men and women who are working in some factory or shop or office during the day or are engaged in the building trades. New technical schools have been established at Montreal and Quebec but classes in them have not yet begun. Winnipeg is erecting two new technical high schools at cost of \$700,000. There are good night schools for the workers in places like Montreal, Quebec, Toronto and Vancouver, but not much opportunity in the way of classes in the smaller cities and towns where the man who earns his living by craftsmanship or in industrial work can get a further training.

Several colleges and universities provide courses of a partially technical character for what may be called the technical professions. Principal Falconer, of Toronto University, was disposed to call the education provided formerly by the School of Practical Science and now by the Faculty of Applied Science of the university, 'professional and not technical.' The institutions where the most advanced courses are provided are the University of Toronto, McGill University, the Polytechnic School of Laval University, the School of Mining of Queen's University, the Nova Scotia Technical College and the University of New Brunswick.

The Agricultural Colleges which are intended primarily for the technical education of farmers also give courses to qualify students for entering upon professional work related directly to rural occupations.

The Ontario Agricultural College at Guelph, with the Macdonald Institute on adjoining grounds, receives men and women. The courses include the various branches of agriculture, household science and manual training. An illustration consolidated rural school rounds out the equipment. During recent years some of the teachers-in-training go from the Normal Schools of Ontario to the Ontario Agricultural College for a special course of some ten weeks in nature study and elementary agriculture.

Macdonald College at Ste. Anne de Bellevue, Que. (which is a College of McGill University), carries on its work in three schools: the school of agriculture, the school for teachers and the school of household science. It also has a Macdonald Illustration Rural School with a model school garden.

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The Agricultural Colleges at Truro, N.S., and Winnipeg, Man., do similar work suited to the needs of their provinces. Buildings are in course of erection at Saskatoon for the College of Agriculture as a part of the University of Saskatchewan. Extension teaching and demonstration work for the rural populations are promoted and assisted by the Agricultural Colleges in all the provinces.

III. A SURVEY OF THE TESTIMONY RECEIVED AT THE SESSIONS OF THE COMMISSION.

Of the 1,470 men and women from whom testimony has been received, some occupy foremost positions in industries, agriculture, mining, lumbering and fishing; others are engaged in educational work, including the superintendents of education, principals of universities and colleges and teachers in institutions and schools of all grades; and others represent the various trades and occupations.

The transcript of the evidence received by the Commission during its 174 sessions amounts to about 4,030 typewritten pages of foolscap size. A first analysis of it has been made and summaries have been arranged under marginal designations, according to the plan on the sheets which are attached hereto.

In general the testimony has been to the effect that provision for industrial training and technical education, in institutions and in industrial establishments, exists in comparatively few places, and in them not to an extent adequate to the needs of the industrial population.

Some of the chief matters which have come before the Commission from witnesses are presented in the following paragraphs in so far as the testimony in regard to particular industries and localities can be summarized into general terms:

The system of training young men and women as apprentices, is becoming less common than formerly. In some trades it has disappeared as a system and learners are expected and required to pick up the trade as best they can. The introduction and use of machinery where hand labour was formerly employed is given as one of the chief causes for the change. In a few shops, notably the shops of the railway companies, instruction classes and systematic instruction in the shops and at machines have been provided to meet the new conditions.

The rapid development of the country and the growth of towns and cities, have provided the lure of relatively high wages for boys and girls of 14 years and younger. That attracts them to leave school early. Frequently such young people accept places and begin work for which little training is required and in which experience does not lead to the acquisition of ability or skill in a trade or occupation which affords permanent employment or is suitable for mature years. At least part of a remedy would come through schools or courses of study which provided more hand work of a constructive kind.

The testimony was substantially unanimous in indicating that in respect to industrial training and technical education the following are among the pressing needs of the people:

(1) Some opportunity in all schools for boys when they are past twelve, whereby the boy will gain experience in constructive hand work as well as book work and thus

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reveal to himself and his teacher and parents the bent of his ability to an extent that will give an indication of what he should choose, and how he should prepare, for his life's work.

(2) Provision for the boys from twelve to sixteen who intend to go into some skilled trade, to learn in school how to use common hand tools for wood and iron and the qualities of common materials. A few of these are fundamental to most industrial occupations.

(3) Courses or schools, of high school or academy grade, adapted to the boys who are going into industrial life. Such schools or courses to give them preparation for their future work equivalent to what the present high schools give to the boys going into the professions.

(4) Some education to make up to the boy, after he begins to work, for what he does not now get through lack of an apprenticeship system, some forenoon, afternoon or evening classes to give him the further knowledge of mathematics and mechanical principles; and also some variety of shop work, to develop the skill of hand and the all-round ability in some trade, which the apprentices formerly got by their long and practical training. The manufacturers and other employers of labour have expressed a willingness to co-operate in helping to make such classes and courses effective.

(5) Evening schools for workmen in the smaller cities and towns to fit them for advancement and promotion.

(6) Some enlargement and improvements of the means whereby farmers' children may learn the elements of the scientific principles which underlie rural occupations such as the growing of crops, the feeding of live stock, the fighting of weeds, insects and plant diseases, and the maintenance of fertility and beauty, and the same in more advanced forms suited to the farmers themselves.

(7) Instruction—the means and opportunity for instruction—of a similar character suited to the lives and occupations of the fisherfolk, and those engaged in the mining industries.

(8) Classes and courses for the training of women and girls to give them clear concepts of the sanitary conditions which make for the safety, comfort and economy of the home; correct ideas of economical ways of providing food and garments and of using fuels; and some practice in domestic art that will further enable them to reveal and enjoy their love for the beautiful by making beautiful things for the house.

(9) Correspondence study courses for persons who are unable to avail themselves of schools and classes; and the advantage to such persons of visiting instructors in connection therewith.

(In this connection it is to be noted that, from the many statements made to the Commission, it would appear that several hundred thousand dollars per annum have been paid by Canadians for correspondence courses provided by American institutions. Those who had taken the courses, or were taking them, testified that they derived benefit; although only a small percentage of the number appear to have carried the work through to the end of the course.)

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(10) Intimate correlations and co-operations between those who manage industries and factories, the men and women most skilled in their trades and occupations, and the managers of the schools and classes where workers are trained.

A great deal of testimony was presented indicating that properly organized hand-and-eye-training with constructive work, was helpful in developing the powers of children from the kindergarten classes upward. The teachers who had experience spoke highly of its value in qualifying the children to take up bench and table work in manual training and domestic science in later years; they also testified that the hand work contributed to the progress of the pupils in what are called book studies.

The survey made by the Commission has revealed a great measure of interest throughout the whole of Canada in the subject of industrial training and technical education.

The representatives of all occupations and interests, who testified, gave the Commission the impression that they expect further action to be taken in the near future in all the Provinces, such as will result in meeting the needs which have been indicated by their testimony.

A number of persons, occupying important and influential positions in industry and education, expressed the opinion that the Dominion Government should in some way assist in developing industrial training and technical education by granting financial assistance.

All of which is respectfully submitted. By direction of the Commission,

JAS. W. ROBERTSON,

Chairman.

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ROYAL COMMISSION
ON
INDUSTRIAL TRAINING AND TECHNICAL EDUCATION

REPORT OF THE COMMISSIONERS

PART II

PRINTED BY ORDER OF PARLIAMENT.



OTTAWA

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1913

ROYAL COMMISSION ON INDUSTRIAL TRAINING AND
TECHNICAL EDUCATION.

OTTAWA, 31st May, 1913.

The Honourable T. W. CROTHERS, K.C., M.P.,
Minister of Labour.

SIR.—By direction of the Royal Commission on Industrial Training and
Technical Education we most respectfully submit Part II of the Report.

JAS. W. ROBERTSON,
Chairman.

THOS. BENGOUGH,
Secretary.

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CHAPTER I: ELEMENTARY EDUCATION IN RELATION TO INDUSTRIAL TRAINING AND TECHNICAL EDUCATION.

SECTION 1: ELEMENTARY EDUCATION IN GENERAL.

There was a general agreement of opinion, as expressed to the Commission, that Elementary Education in Canada affords satisfactory preparation for entering Secondary Schools, but that it does not give the kind of training or the kind of knowledge which should be possessed by those who leave school at 14 years of age or thereabouts and enter upon industrial, agricultural or housekeeping occupations. Considerable changes have been introduced during recent years to give such pupils a more specific preparation for their life work. Manual Training has been introduced partly with this object in view and partly for its cultural influences on the general powers of the pupils. Domestic Science finds a place on the programme chiefly for its practical value; School Gardens have been taken up and Nature Study has been extended particularly for the purpose of cultivating the powers of observation and increasing the knowledge of the children concerning the things of Nature which lie close to them and all about them.

PRE-VOCATIONAL WORK.

More recently in several other countries the activities of the children during the last year or two of their attendance at school give them a definite preparation for the vocations which they will follow. For a long time the only vocations which the schools intentionally and definitely prepared for were those of the learned professions. Now in public Elementary Schools in England, Scotland, France, the United States and elsewhere the children do work at school with materials and tools from 12 years of age and upwards for the definite purpose of giving them industrial and technical (trade) preparation for the occupations they are to follow. This education is closely co-ordinated with the other or literary part of the schoolwork wherever that is practicable with advantage to the pupil.

In London and other places in England, at the age of 11 to 12, children whose parents so desire may receive education for 2 or 4 years in schools with what is called an industrial bias, or a commercial or domestic occupations bias. In some other places this is called Supplementary Education, or Pre-Vocational Education, or Trade-Preparatory Education. The object is to combine with the work of the Elementary School such series of experiences as will qualify boys and girls upon leaving school to enter upon occupations with as much preparation as is practicable, considering their age, strength and capacity.

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The industrial bias means that the courses give the pupils experiences of such a sort as to awaken their interest in industries and their processes and products, and to increase their knowledge concerning these. The courses are arranged to develop ability and understanding by practice in doing work of a kind as nearly similar as possible to that of the industries themselves.

SOME CONCLUSIONS.

From the testimony received it appears highly desirable in the interests of vocational efficiency,—

That all children to the age of 14 years should receive the benefits of elementary general education up to at least the standards provided by the school system of the place or province where they live;

That the experiences of the school should tend more directly towards the inculcation and conservation of a love of productive, constructive and conserving labour;

That, after 12 years of age, for the children whose parents expect or desire them to follow manual occupations, the content of the courses, the methods of instruction and the experience from work undertaken at school should have as close relation as practicable to the productive, constructive and conserving occupations to be followed after the children leave school.

The Commission is further of opinion,—

That benefits from such Pre-Vocational education would accrue (a) from the interest awakened in manual occupations; (b) from the discovery through their experiences at school to the pupils themselves, and to the teachers and the parents, of the bent of their abilities and aptitudes; and (c) from the taste and preference thus developed leading the children to follow skilled occupations for which they are suited;

That further advantage would result because the interest which this form of education would arouse in the children would dispose them to desire further education after they had begun to work, and cause them to keep in touch with educational effort in some form;

That the time and attention devoted to Pre-Vocational or Trade-Preparatory work in no way detracts from or hinders progress in general education of a cultural sort.

SECTION 2: ELEMENTARY EDUCATION FOR VOCATIONAL EFFICIENCY.

IMPORTANT CONSIDERATIONS.

The kind and amount of Industrial Training and Technical Education which an individual is able to take up and profit by is determined to a large extent by the previous general education. General education is here taken to

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mean the formal studies in reading, writing, drawing and arithmetic, together with the experiences got from association with others in work, in play and in social intercourse, which have developed the powers of mind and body and have furnished the knowledge possessed by the individual.

Those who have this general education in hand will best provide for subsequent vocational efficiency by ever bearing in mind the following propositions:—

- I. It is important that health should be protected and preserved.
- II. It is important that the harmonious growth of the powers of body, mind and spirit should be fostered.
- III. It is important that the senses, the avenues of impressions whereby knowledge is acquired in the first instance, should be trained.
- IV. It is important that ability and desire to work and play with enjoyment, intelligence, skill and energy should be developed.
- V. It is important that good habits should be formed, particularly habits of obedience, courtesy, diligence and thoroughness.
- VI. It is important that proper standards of conduct and character should be maintained and that high ideals should be followed.

The schools of Canada accomplish much towards these ends, but in order that their pupils may be prepared to profit to the fullest extent by Industrial Training and Technical Education, the evidence which has been received by the Commission requires us to submit the following suggestions regarding general Elementary Education, for its improvement, extension, enlargement and enrichment.

I. TRAINING OF THE SENSES AND MUSCLES.

Provision should be made from the beginning for series of experiences whereby the senses and muscles would be trained and developed, as by the Kindergarten and the Montessori Methods, followed throughout all the elementary grades by appropriate Construction Work and Drawing. Tasks with a meaning which appeal to the pupil furnish better lessons than mere exercises which do not call forth willing and purposive effort. They should be arranged to ensure the training of,—

The Sense of Seeing, to discriminate closely between forms and sizes; the Chromatic Sense to distinguish between colours and shades of colours;

The Sense of Feeling to discriminate by touch, temperature and weight;

The Sense of Hearing, to discriminate quickly and closely between sounds;

The Muscles by such conscious and purposive movements of the arms, hands and fingers, in co-ordination with the eye and also blindfolded, as would develop what might be called muscular aptitude and muscular memory.

II. MORE AND BETTER DRAWING.

Provision should be made in all schools for practice in Drawing. Nearly all children, from five years of age, have a desire and some ability to make "Pictures". They should be encouraged and directed to represent their impres-

sions and thoughts (mental images or pictures) in form and colour. Such efforts lead to habits of careful observation of whatever thing is being studied. Material from Nature is the best subject matter; next, objects in common use. Making copies from flat drawings, before considerable facility has been acquired in representing forms and colours, appears to be a waste of time. The teacher can render most help by suggestive enquiry and by leading the pupil to compare the drawing critically with what it purports to represent.

III. MORE PHYSICAL CULTURE.

Physical Culture, co-ordinated with the training of the senses and muscles, should be part of general education in all schools. The series of experiences provided should have regard to the preservation of health, the exhilaration of recreation, and the harmonious development of the powers of the child through directed and willing control of the body, in movement, in repose, in action, in work and in play.

IV. NATURE STUDY AND EXPERIMENTAL SCIENCE.

Nature Study, from its beginnings in the observation, consideration and recording of common phenomena, particularly in those out-of-doors, leads naturally to the use of those sciences called Biology, Physics and Chemistry. At this stage a simple laboratory is necessary. It need not be elaborate in its appointments. Systematic study by experimental laboratory methods would be of advantage, whether a pupil is to go directly to work after leaving the Elementary School or on to a Secondary School and perhaps later to a College.

V. PRE-VOCATIONAL WORK.

There should be differentiation in the instruction and the activities of the pupils after the age of 11 or 12, with due regard to the occupations which they will probably follow. Series of experiences at school may be entirely educational and at the same time prepare the pupils for carrying on the operations and processes which are common to groups of fundamental vocations, such as the agricultural, industrial, commercial, housekeeping and professional. They have to do, as far as materials are concerned, chiefly with soil, plants, clay, paper, wood, textiles, metals, leather and foods.

VI. MORE AND BETTER SINGING.

Class Singing of good songs, and singing by the school in mass, should be encouraged as a means for cultivating the patriotic spirit and the control of the expression of emotions. Singing should provide frequent recreations for the feelings during every school day. From three to five minutes when lessons are changed would suffice. The cultivation of a love of good music and the development of ability to sing would naturally follow.

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There are many benefits from frequent periods of enthusiastic singing in class and in mass; and also advantages from periods of immobility and silence. But few schools, outside Germany and Denmark, have learnt the value of such alternate experiences as preparation for quick and clear receptivity and correspondingly clear and competent power of expression.

VII. PLAY AND GAMES.

Organized and Supervised Play and Games should be provided as a regular part of the school course. Some attention should be given to such forms of play, games and recreation as could be continued by the pupils and followed with enjoyment and benefit after they become adults.

RELIEF OF THE TIME-TABLE.*

It is to be remembered that these suggestions do not imply the introduction of any new subjects into the course of study. The relief of the time-table from the pressure of a multiplicity of separate subjects as such is an evident necessity. The work of the school should gradually be arranged less and less on subjects as such and more and more on occupations, projects and interests, each of which would form a centre for the correlated study of several subjects such as reading, composition, number work, writing and drawing.

THE FORMATION OF HABITS.

Educational progress towards efficiency for working is made when the individual pupils form the habit of treating every lesson, when practicable, as a cycle of activities including:—

Attending and responding, that is reacting with purpose, to material things, forces and thoughts;

Observing closely and, by the aid of knowledge already possessed and by experiment or inference, using impressions obtained to form new ideas or concepts;

Reflecting on the increased content of the mind by holding ideas in relation to each other and planning for subsequent co-relative expression;

Expressing thoughts, feelings and purposes in various forms, such as, speaking, drawing, writing, making, modelling, painting, acting, singing, etc.

Applying the knowledge thus acquired to new cases and reasoning to conclusions in general principles, thereby gaining new power and ability for reacting, observing, reflecting and expressing.

Impression and expression have a reciprocal relation, the permanence of the impression depending on the interest felt in the expression and the truth of the expression on the clearness of the impression. The educational value of both is the extent to which they form habits serviceable for the practical needs of daily life.

The processes indicated in the foregoing paragraphs are not wholly separable from each other. That form of statement is used for convenience of explanation. The point is that the lesson or lessons, which constitute an educational project or occupation, should not stop short of the full cycle of experience in observing, reflecting, expressing and reasoning to conclusions as indicated. Such a use of the matter to be dealt with in lessons would naturally result in the carrying over of the ideals of such procedure into other activities. In consequence we might reasonably expect the formation of habits such as:—

Managing the self and things with ever lessening waste of time, force and material;

Co-operating with others to give objective expression to inner conceptions through working, playing and living.

BIOLOGICAL AND SOCIAL.

Since education is recognized as having two chief functions of service, one biological and the other social, it can doubtless serve individuals better by the discharge of those functions concurrently, than by separating them for attention at successive stages. Whether stress should be laid on one more than another at different times during the period of education is a question for the teacher. Education being for individuals who are living in a world of things (animate and inanimate), of forces (personal and external), of ideas and of emotions, it must attempt to train for useful, happy life by methods which recognize all these factors at every stage of educational progress.

Having regard to the fact that all education is for life, and that the occupation absorbs a large proportion of the strength and time of life, it appears wholly desirable that education at the school or elsewhere should prepare for occupation by having the pupils over 12 years of age participate in the activities of some fundamental occupation, as well as receive intellectual instruction.

FURTHER CONCLUSIONS.

The Commission is of the opinion,—

(1) That education should have regard to the growth of the powers of the body, mind and spirit concurrently, and that it should have regard to the preparation of the pupil for later life as an individual, as a working earner, as a citizen and as a member of the race;

(2) That education should be provided of a kind suitable to meet the needs arising from the changes in the nature and methods of occupations, the manner of living and the organization of society;

(3) That existing institutions, in so far as necessary, should be modified or altered and have additions made to the courses of study or kinds of work taken up;

(4) That the preparation of teachers for the new and different kind or kinds of education is a first necessity and duty in order that they may be qualified to do the new work successfully;

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(5) That such improvement, extension, enlargement and enrichment as have been indicated would let the school experiences become a reasonable preparation for beginning working life and entering upon Industrial Training and Technical Education, and that without such preparation no system of Industrial Training and Technical Education can, to any considerable extent, be permanently successful.

SOME RECOMMENDATIONS.

The Commission is of opinion that the teaching of Drawing, Manual Training, Nature Study, Experimental Science and Pre-Vocational work (including Domestic or Household Science) in Elementary Schools is of great importance and value and should be provided for generally.

Having regard to the cost of carrying on these branches in the Elementary Schools, until teachers are available who themselves have been taught them during their school days, and bearing in mind that such school work was not contemplated as part of public education at the time of Confederation when the Provinces accepted the responsibility of legislating for the maintenance and control of education within their borders, the Commission ventures to recommend that a Fund be created from which payments would be made to the Provincial Governments during a period of ten years.

The Commission suggests that such a Fund should receive not less than \$350,000 a year for ten years from a Dominion Parliamentary Grant; and that it should be divided into nine portions, in proportion to the population in each of the nine Provinces as determined by the latest census, and allotted to each Province accordingly.

The Commission further suggests that there should be paid to each Province from said Fund (if and when the amount to its credit in said Fund is sufficient therefor) an amount not exceeding 75% of the amount which such Province had paid, during the immediately preceding fiscal year, for the promotion and support of Drawing, Manual Training, Nature Study, Experimental Science and Pre-Vocational work, including Domestic or Household Science, but not including the provision of buildings.

It would appear to the Commission that a certificate by the Chief Education Officer of any Province, setting forth in detail the places, the work done and the sums paid by the Province in furtherance of these branches should be regarded as satisfactory evidence of the amount earned by said Province.

Any portion of the Fund allotted to a Province which may remain unpaid or unearned at the expiration of any fiscal year should be carried forward and remain in the Fund for said Province until earned.

SECTION 3: PRE-VOCATIONAL INDUSTRIAL EDUCATION IN ELEMENTARY SCHOOLS.

At many of the places visited the local committee or other representative body, to whom the Commission was indebted for opportunities to learn what was being done in Industrial Training and Technical Education, first guided the Commission to an Elementary School to show the character of the Hand Work which was provided for. That was the case more generally in Europe than in Canada. Out of that experience grew the conviction that a Report on Industrial Training and Technical Education would not represent fairly what was being done unless it included at least a brief statement concerning the Pre-Vocational or Trade-Preparatory parts of Elementary Education. Consequently some information is presented on recent developments of these parts of Elementary Education in England, Scotland, the United States, Germany and France.

(1) CONSULTATIVE COMMITTEE OF THE BOARD OF EDUCATION (ENGLAND AND WALES.)

The Consultative Committee was created by the Education Act of 1899, which empowered the Crown to appoint a Committee, two thirds of whom represent universities and other bodies interested in education, for the purpose of framing regulations for the registration of teachers and of advising the Board of Education on matters referred to it. It consists of 21 members, appointed by the Crown on the nomination of the President of the Board of Education, holding office for 6 years, one third retiring every second year.

The following are extracts from the *Report of the Consultative Committee on Attendance, Compulsory or Otherwise, at Continuation Schools* (1909).

"The Committee feel that some reference to the education and training given in the Day School is an inevitable preliminary to the consideration of the problem of Continuation Schools. The Day School and the Continuation School are integral parts of a whole, and it is useless to discuss the possibilities of the one without considering those of the other. The Continuation School works upon the material prepared in the Day School. Its curriculum, its methods of teaching, must be a natural development of the Day School.

"Even what they have learnt is often of an academic rather than a practical nature, and if, as often happens, they go at once into unskilled work, and have no opportunity of applying and fixing the knowledge they have acquired, they soon forget even what little they ever learned.

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"Exposition, now often given in excess, would be replaced in part by constructive work, and the consequent development of each child's individual powers would lead to an increasing desire for a lengthened school life.

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"But if it is believed that within certain age limits the brain development of children is better secured if their hands are brought into play than if they are wholly confined to book instruction, and this view is strongly held by the Committee, then an examination of what is being done in the Elementary Schools shows how far we are from reaching any such ideal. Training in handwork is no doubt common in the case of infants in kindergarten classes. But when infants are promoted to the lower classes of the upper school, this form of training is frequently dropped and not resumed until the children become eligible at the age of 11 or 12 to earn grants for instruction in the Special Subjects enumerated in the Code, and then only in a small percentage of cases, chiefly in the larger towns. The Committee understand that the movement in favour of increasing opportunities for handwork in the Day School for children between 7 and 11 or 12 years of age is growing, and that in some Public Elementary Schools much is already done.

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"The Committee feel that these figures point to a very serious defect in the Day School. They think that manual instruction should, in some form, enter into the curriculum of all schools for older scholars, as is the case already in London and some other large towns, and that this important branch of their training should not be dropped, as it so often now is, when children leave the Infant School.

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"There are, of course, other ways in which the curriculum of Public Elementary Schools could be improved, so as to give the scholars not only a better education during their Day School period, but one which would fit them better for further education. But the one outstanding fact is the need for more hand-work in the curriculum."

(2) LONDON COUNTY COUNCIL.

The following extracts from the Report of the Education Committee of the London County Council, approved March 1910, indicate the trend of opinion and action.

There is at the present moment a wide-spread feeling that it is of great importance, in the interests of the community at large, to give more attention to the development of "practical" education in the elementary schools. Both educationists and men of affairs seem to concur in the view that education can be made more effective if the pupils can be taught more by "doing" and less by listening. It is considered that the intelligence of both boys and girls can be stimulated and trained not only by the imparting and acquisition of knowledge by means of books, but also by the exercise of hand and eye upon concrete objects. It is felt that a boy on leaving the elementary school should have had an all-round training of his faculties, and should have acquired that readiness and adaptability which will enable him to turn his hand to the task that awaits him in the workshop or factory. Working-class parents are themselves fully alive to the importance of obtaining this kind of training for their children, as is shown by the recent formation of the National Industrial Education League, which has for its object the promotion of a system of education for boys in the elementary schools which will enable them to hold their own in the industrial world.

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The formation of the various Trade Consultative Committees, which are now assisting the Council in its work of technical education, also shows the importance which the workers in the various trades attach to education. Another sign of the present trend of thought is given by the fact that a deputation from the metropolitan borough councils recently waited upon our General Purposes Sub-Committee and called attention to the importance of making education in elementary schools more practical.

We are of the opinion that this movement of public opinion gives an indication of the method which the Council should adopt in the organization of the proposed schools. They should, in our opinion, be schools which will give their pupils a definite bias towards some kind of industrial or commercial work while ensuring that their intelligence should be fully developed and they should occupy a distinct position from the secondary school. They should avowedly frame their curricula with a view to the pupils leaving at an age between 15 and 16. Their courses should be so framed as to provide for the pupil the best possible equipment for entering upon the industrial or commercial world as soon as he leaves school while at the same time qualifying him to enter upon a special course of training for some particular industry at a polytechnic or similar institution if he desires to continue his education further.

(3) CENTRAL SCHOOLS OF LONDON.

In addition to the Elementary Schools which supply the usual type of general education the London County Council has organized a number of Central Schools with a view to providing for those boys and girls who are to stay at school till about fifteen years of age an education which, while being general, will have a commercial, industrial or domestic subjects bias. It is proposed that there should be about sixty such schools and that they should as far as practicable be distributed uniformly throughout London. The pupils are selected from the ordinary schools when between the ages of 11 and 12 and they are chosen partly on the results of a competition for scholarships and partly on the results of interviews with the Head-teachers and Managers.

MUCH CONSTRUCTIVE WORK.

Only those pupils are accepted whose parents desire them to receive from that age some definite instruction and training to qualify them for the occupation which they are likely to follow when they leave school at 13 to 15 years of age. These schools make no attempt to teach trades as such. The pupils are given opportunity to acquire a knowledge of materials, tools and manipulations which will make them more useful and more able to learn quickly when they go to work in shops and factories or homes. The theoretical instruction and the practice in Arithmetic and Drawing are given a direct relation to the practical work of the pupil. Although there are differences in individual schools, in general about one half to two thirds of the time of the pupils is devoted to work on subjects usually taught in Elementary Schools, and about one half to one third of the time to manipulative or constructive work.

SCHOLARSHIPS.

A limited number of bursaries or scholarships tenable from the age of 14 to about 15½ are awarded to those pupils who need financial assistance to enable them to stay at school beyond the age of 14.

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These schools are distinguished from the ordinary Elementary Schools by the fact that the pupils are selected and are expected to go through a complete four years' course with a special curriculum. They are also distinguished from the Secondary Schools by the fact that they are public Elementary Schools providing free education and that the curriculum is framed with a view to enable pupils leaving school at the age of 15½ to be in a better position to earn their living. The total number of Central Schools that had been organized up to 1911 was 39. Of these 13 have an industrial bias, 13 a commercial bias and 13 both an industrial and commercial bias.

The Commission understood that when the Central School scheme comes into full operation it is the intention to have the schools reserved for only pupils over 11 years of age.

The Commission visited a number of typical Central Schools. The following are notes of some of the suggestive or instructive features:—

WEST SQUARE CENTRAL SCHOOL.

This is a school for boys and girls with an industrial bias. About half of the whole time was given to practical or manipulative work including Drawing. Out of ten sessions per week one and a half sessions were devoted to work at benches in the workshop. The bench work was with wood only. The Principal of the school would prefer wood-working during two years and then wood and iron-working concurrently during two years.

The courses of study are grouped under several divisions, namely, Industrial History, Economic Geography, English, Mathematics, Handicrafts, Drawing. These are all closely correlated. For example, in the Wood-working department the boys make the apparatus required in the Science Laboratory. The school is situated in a working district and is specialized towards industrial life. Other Central Schools at the differentiation period give both commercial and industrial instruction. This school leaves out the commercial. The Commission received a volume containing a statement of the schemes of work in detail and illustrated by the pupils. It is a matter of some regret that space cannot be found for a representation of this document. Several hundred drawings illustrate the general syllabus for Science, Handicrafts and Drawing.

INDUSTRIAL HISTORY.

In the division of Industrial History the following brief statements are given as illustrations of the syllabus:—

First Year's Course: General Scheme.—Outlines of general history 1066–1485 with special reference to the Domesday Book and the Feudal system; origin and growth of towns and guilds; economic effects of the Feudal system; agriculture, the principal industries, manufactures and trades, England's monopoly of wool, the effect of the Crusades on foreign trade; the Black Death and its economic results; the Peasants' revolt of 1381, and the subsequent condition of the people at the close of the Middle Ages.

Then follow details of the syllabus and the mention of reference books.

Second Year's Course: General Scheme.—Outlines of general history 1485–1689 with special reference to trade and industries, and the conditions under which the people lived; the conditions prevailing at the close of the Middle Ages and the great changes arising from the Wars of the Roses; the rapid growth of foreign trade owing to colonization; the increase of the mercantile classes; the revival of learning.

Then follow detailed particulars with mention of reference books.

Third Year's Course: General Scheme.—Outlines of general history 1689–1820, with reference to the "Bloodless Revolution" and its effects on industry and trade; the rising power of the trading classes; the acquisition of colonies and dependencies and the expansion of foreign and colonial trade; the transition from the domestic system of industry to the establishment of factories; the age of inventions.

Then follow detailed particulars with mention of reference books.

Fourth Year's Course: General Scheme.—Outlines of general history 1820 to the present time, with special reference to the industrial progress of the nation; the improved means of transit internally and with colonial and foreign ports; introduction of penny postage and the electric telegraph; the growing power of the industrial classes and organization; the general reform of social conditions; local government and extension of self government to the colonies.

Then follow details of the syllabus with mention of books for reference.

DRAWING.

In the Division of Drawing, Free Drawing and Mechanical Drawing are carried on concurrently during the whole of the four years. Free Drawing from Nature in the form of stems, leaves, flowers and shells goes practically hand in hand with Mechanical Drawing. In the fourth year the Free Drawing takes up the application of the forms of stems, leaves, flowers and shells to simple design, while the Mechanical Drawing goes as far as simple Mechanical Drawing as applied to machine construction with Isometric Drawing as applied to technical work.

A serious effort is made to shape the instruction so as to qualify the boys for the industrial life of the district. No attempt is made to teach the boys directly any trade, but to give them a degree of familiarity with tools in general besides the scientific elementary principles applicable to all trades.

Similarly girls are trained so as to be fitted for home-life. The girls' courses cover cooking, laundry, housewifery or house-keeping, dressmaking, needlework or embroidery; and preparation was being made for the introduction of millinery.

INTEREST AND ENTHUSIASM.

A detailed course of study was also obtained from the Childerley Street Central School. It is somewhat different from that of West Square Central and was framed to meet the conditions of working and living in its area.

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At the Childerley Street School the children between the ages of 11 and 12 are drawn from 17 other schools. The Commission was impressed by the evident interest of the boys and girls in their work. As a case in point, upon entering a drawing room where 25 boys were at work, instead of the presence of the Commission creating distraction there was only a casual glance of observation and then every boy went on intently with his work.

Other Central Schools were visited. A volume would be required to contain particulars regarding all the good work carried on at them. The Commission was impressed by the enthusiasm, native ability, alertness and educational experience of the Headmasters and the Headmistresses.

Physical Drill and Music were in evidence, boys singing what appeared to be difficult music in excellent harmony. Boys between 9 and 10 drilled with a precision of movement that was quite remarkable. In the Physical Drill of the girls more attention was directed towards grace of movement as illustrated in simple dances.

From one of the Central Schools it is reported that 70% of the boys enter industrial work. The Headmasters are in touch with employers and do their best to place every boy in a situation on the completion of his course.

(4) TRADE PREPARATORY SCHOOLS IN LEEDS.

The Trade Preparatory Schools of Leeds belong to this class. They do not attempt to teach a trade as such, but to give information and training which prepare the boy to make progress without loss of time after he goes to work. These Pre-Vocational or Preparatory Trade Schools are also said to satisfy the boys and girls that through them they are acquiring experiences, developing abilities and gaining knowledge which will be directly beneficial to them. When this attitude of mind is common throughout the classes of the school, teachers say, pupils make much more progress. That is what might be expected.

GOOD ALL-ROUND TRAINING.

The Holbeck Preparatory Trade School is a good example. It was opened in February, 1906, and was in full working order when visited by the Commission. The course of instruction given in the Trade Preparatory School is calculated to answer two very useful purposes. In the first place the hand, eye and brain are trained on sound commonsense lines, with a view to the ultimate employment of the boy in some branch of engineering. Secondly, the boy has many opportunities of observing and taking part in different kinds of work and processes. His interest is aroused and stimulated. He competes with his class fellows and often develops ability in quite unexpected directions. By this means the boy is encouraged to select some particular branch, and to some extent to specialize thereon, with a view to following it up in the works. When the time

comes for him to be drafted into the particular shop or office selected, he goes with a clear understanding of what is before him and with a mind fully prepared to master all the intricacies of his craft in record time.

The leading local employers are in full sympathy with the aims of the school, and the opinion in Leeds is that the time is not far distant when a full Preparatory Trade Course will be an essential qualification for entry into the better class of engineering works, which correspond with what are known in Canada as the Metal Machine Trades.

The course of instruction provided covers a period of two years, and is laid down with the object of improving the general education, developing common sense and reasoning power, and enabling a boy to acquire the necessary manual dexterity to ensure that he shall be put at once on useful work when he enters the shops.

Boys are admitted who have attained the sixth standard. That is two years before the completion of the Elementary School. The age is usually from twelve to thirteen.

FEATURES WHICH IMPRESSED THE COMMISSION.

The following is a brief statement of the features which impressed the Commission on the occasion of their visit:—The school takes in lads intending to go into industrial work and an undertaking is required from the parents to the effect that the lad will not be withdrawn in less than one year. While the school authorities prefer that each pupil should stay at least a year and a half they let the boys go whenever a suitable place is obtainable. The main object is the improvement of the capacity of the youth before he enters on a trade. It aims at developing industrial capacity in lads of from twelve to thirteen. The courses of study are set out in full in the announcement; they are practically arranged in three divisions as to time, one third to English subjects, one third to mathematical subjects, and one third to shop work in metal and wood. The teachers engaged are men who are skilled workmen. They take a personal interest in preparing the boy for his future work and also in securing a place for him. Both the teachers and the boys themselves are on the lookout for suitable places. The equipment of the school was suited for handwork, foot power being used on the lathes. It was held that the boys learned more and learned better in that way. The attitude of the pupils revealed earnestness and keen interest in their work. The excellent quality of the work was specially noticeable in the wood and metal products and in the drawings.

MR. GRAHAM'S OPINION.

Mr. James Graham, Chief Education Officer for the city of Leeds, told the Commission that he desired very much to see work such as that done at the Holbeck Trade Preparatory School put into every Elementary School for boys throughout Leeds, so that between the ages of 12 and 14 they may obtain a knowledge of the principles underlying all the main trades of Leeds. Their

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English will be better than at present, their ability to draw will be better, they will read a plan easily and be able to make measurements and work out in practical arithmetic, based on measurements, statements of machinery details, etc. In short he anticipated that they will rapidly become skilled workmen, either at the bench or lathe. If they are going to be that, the sooner they are into the works after 14 years of age the better the boys will be as mechanics.

(5) SUPPLEMENTARY COURSES IN SCOTLAND.

There is a considerable development of this type of educational work in Scotland. There it is known by the name of "Supplementary Courses of Instruction".

These may be considered as the most advanced work of the Primary School. They are designed for pupils who are to leave school at the age of 14. The instruction is to a certain extent specialized, and the Department indicates the nature of the specialization in specimen Supplementary Courses. These are:—I. Commercial Course; II. Industrial Course; III. Course for Rural Schools; IV. Household Management (Girls) Course. Navigation is suggested for seaboard schools. It is expressly stated by the Department that these courses are mainly suggestive and cannot, as a rule, be satisfactorily overtaken in their whole extent by pupils who leave at the age of 14. However, they are carried on in such a way that the pupil can continue them in the more advanced Continuation Classes.

Circular 358 of the Scotch Education Department states:—

School work has for its end and aim objects more important than preparation in the narrow sense for any particular occupation. It should aim at producing the useful citizen, imbued with a sense of responsibility and of obligation towards the society in which he lives. It should render him—so far as the school can do so—fit in body and alert in mind, and should prepare him for the rational enjoyment of his leisure time, as well as fit him for earning his living. These are ideals, no doubt; but they are ideals towards which the school should constantly strive.

With regard to the special instruction to be given in the several Supplementary Courses, my Lords do not expect, nor do they at all desire, that such instruction should attempt to take the place of that kind of knowledge which can only come from the daily practice of some particular occupation. But this instruction, rightly given, should make that practice more intelligent, and should remove certain difficulties from the way of the learner. It should be sufficiently general in scope to make it profitable even for those who for one reason or another will not follow in after life the particular group of occupations which has been kept mainly in view.

It is obvious that great differences will exist, particularly between town and country schools, as regards facilities for the formation of courses such as those now suggested. In considering the problem of these courses, my Lords have had constantly in mind the position of the small rural school taught by one teacher. In such circumstances class teaching of the small number of pupils who have reached the Merit Certificate stage is clearly out of the question. But my Lords are scarcely disposed to regard this as being, in certain respects, any real disadvantage. It has been frequently noted as one of the defects of the large town school, with its minute subdivision of classes, that the pupil is left little leisure to think for himself, and

that the habit of depending upon the instructions and explanations of the ever-present teacher is apt to become ingrained. On the other hand, it is the opinion of not a few experienced observers that the country lad, as compared with his contemporary in a town school, shows towards the close of his school career greater intellectual resources, and that this is due, not so much to inherent mental ability or to any superiority in the teaching, as to the fact that—the aid of the teacher not being always available—he has been forced by circumstances to think for himself. Be this as it may, it is clearly desirable, in the case of a pupil who is to be more or less his own master at fourteen years of age, that there should be in school a period of preparation for this state of semi-independence, during which transition period he shall be regarded not as a pupil of a class, but as a student studying, under direction, certain subjects for ends which he himself in some degree realises and desires.

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Not merely should self-reliance in study be fostered, but a sense of responsibility should be inculcated, by giving him at this stage some authority as regards conduct in the playground, and the minor matters of discipline, as well as a position of honour in exercises common to the school, such as drill. The boy at this stage tends to acquire a sort of authority among his school-mates, and it is most important that this natural influence should be enlisted on the side of law and order, rather than that it should be driven, as it easily may be, into opposition. There seems to be no reason why it should not be turned to account in primary schools, as it frequently is in secondary schools, as an instrument in the development of character, and in the fostering of a healthy *esprit d'école*.

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But whether in town or country, whatever the opportunities for collective instruction may be, the distinguishing note of the work of the pupils in the Supplementary Courses should be individual study directed to practical ends. So far as the acquisition of knowledge is concerned the object should be, not so much to impart information to the pupil as to exercise him in obtaining for himself from sources within his reach, and setting out in an orderly manner, all necessary facts relative to a given topic. Great use may be made of the daily newspaper as a starting point of such investigations. For instance, having made an analysis of the shipping returns for a given port the pupil may ascertain the general character of its trade; look up in an atlas the various places mentioned in the shipping list; make note of their relative position and distance; gather from school geography, gazetteer, or encyclopædia certain information as to the more important of them, and finally set forth the information obtained in a well digested and orderly form.

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All this is not matter for formal and regularly recurring lessons in geography or history, but for individual investigation extending over, it may be, several days. The newspaper will also be useful in other ways. Its various articles will afford material for exercise in *precis* writing; difficulties of vocabulary will give occasion for frequent and useful reference to the dictionary; above all, perhaps, the market reports will furnish a body of material for exercises in calculation much superior to the cut-and-dried examples designed to illustrate the rules of a text-book, while their perusal may be made the occasion of acquiring much incidental information of practical value. It is by means such as these that a sense of actuality may be given to the work and a spirit of initiative cultivated in the pupils. But the examples given are not intended as directions to be implicitly followed; it is much more important that individual teachers should exercise their ingenuity in devising for themselves the best means they can for achieving the essential objects aimed at.

TWELVEFOLD INCREASE IN TEN YEARS.

An indicative of the growth of Supplementary Courses the following information is taken from the report of the Committee of Council on Education in Scotland, 1910-1911:—

A notable educational development of recent years has been the attempt to add reality to the work of the Primary School in its later stages by setting aside some time for the consideration of what has been already learned, in its practical bearing on the probable future occupation of the pupil and the employment of his leisure time. That is the special function of the "Supplementary

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Courses" to which it is desirable that one or, if possible, two years should be given before the close of the period of general education. During the year ended 31st August 1910, 60,683 candidates were approved by the Inspectors, under Article 20 of the Code, for enrolment in Supplementary Courses or Higher Grade Departments.

During the same period the average attendance on which grant was claimed in 1,945 Primary Schools was 43,287, representing the scholars who have received instruction in Supplementary Course Work, and on whose account grants have been allowed at the advanced rates under Article 21 of the Code. Some idea of the progress in advanced work in Primary Schools during recent years may be gathered from the fact that in 1900 the number of these schools was only 162, with an average attendance of 3,282 in Supplementary Courses, paid under Article 21. But there is room for increased effort in this direction, and the need for Managers to make suitable provision for practical instruction in terms of Schedule VI. of the Code cannot be emphasized too strongly.

The foregoing shows an increase of over twelvefold in ten years; and yet the authorities, it will be noted, emphasize the need for increased effort.

EXAMPLES IN EDINBURGH.

The Commission visited schools in Edinburgh and saw classes in the Supplementary Courses at work in rooms fitted up in the ordinary public schools. In the Gorgie school, out of a total enrolment of 750 pupils, 80 boys and 80 girls were in the Supplementary Classes. In the Dalry School there was a similar proportion of pupils in the Supplementary Classes. Edinburgh has gone ahead with the plan of providing three special schools in which these Supplementary Classes can be conducted for children of twelve years of age whose parents desire their education to be somewhat specialized according to the trade or profession which they wish their children to follow. They will have a larger equipment for practical work than is at present provided.

Before they can get admission to the Supplementary School the scholars have to pass a qualifying examination of the Scotch Education Department so as to ensure that they are capable of taking advantage of the instruction imparted in it. The children are grouped into two divisions, those going on to the trades in one group and those desirous of a commercial career in the other. The curriculum is adapted to suit their needs. For those about to learn trades the workshops in connection with the school will be utilized. These workshops at the one school already erected, known as Tyne-castle Workshops, provide for instruction in the following branches: Elementary Engineering, Brass Finishing, Tin-smithing, Moulders' work, Pattern Making, Elementary Building Construction, Plumbing, Carpentry and Joinery, Cabinet and Furniture Designing, Upholstering, French Polishing, Plasterers' work, Tailors' work, Tailoresses' work. There are also classrooms for Cookery and Laundry work.

CERTIFICATE OF MERIT.

To pupils who have satisfactorily completed the course of the Primary School, including attendance for at least one year at an approved Supplementary Course, the certificate called the Certificate of Merit is granted.

While there is no doubt that in many of the Supplementary Courses good work is being done, those in close touch claim that there is still need of improvement, especially in the direction of preparation for the future work of the pupil in the Continuation Classes. At present too many come to the Evening Classes with little of the special training that the Supplementary Courses are designed to provide.

(6) EXAMPLES FROM THE UNITED STATES.

FITCHBURG, MASS.

In the United States during the last few years beginnings have been made at many places in providing what are called Independent Industrial Schools and Schools of Manual Arts. An example of the latter kind of school is the Observation and Practice School at the Normal School at Fitchburg, Mass. At this school the pupils who take the Practical Arts Course begin at about 11 or 12 years of age to do manipulative and constructive work, the products of which have economic values. The children devote about 20 hours per week to the usual school subjects and 10 hours per week to the industrial activities.

The School is called the Manual Arts School of Fitchburg, Mass. Pupils from any part of Fitchburg who have completed the 6th grade are admitted at about 11 or 12 years of age. Four courses are offered, the successful completion of any one of which admits the pupil to the High School, where he may continue the line of work upon which he has begun or may take a fresh start by electing a different course.

A Commercial Course—30 hours per week—for those who expect to take the Commercial Course in the High School or Business College, or who intend to go to work in offices or stores at the end of the grammar grades.

12½ hours to Literature, Composition, Spelling, Penmanship, Mathematics, Geography, History, and Science.

7½ hours to Physical Training, Music, General Exercises, and Recesses.

5 hours to Bookkeeping, Business Forms and Procedure, Business Arithmetic, and Related Design.

5 hours to Typewriting and Hand work,.

A Literary Course—30 hours per week—for those who expect to go on through the High School and College.

12½ hours to Literature, Composition, Spelling, Penmanship, Mathematics, Geography, History, and Science.

7½ hours to Physical Training, Music, General Exercises, and Recesses.

5 hours to a Modern Language.

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5 hours to Drawing, Designing, Making and Repairing. (Household Arts for Girls.)

A Manual Arts Course—30 hours per week—for those who expect to take the Industrial Course in the High School, or who intend to go to work in the trades, the mills or factories at the end of the grammar grades.

12½ hours to Literature, Composition, Spelling, Penmanship, Mathematics, Geography, History and Science.

7½ hours to Physical Training, Music, General Exercises, and Recesses.

10 hours to Drawing, Designing, Making and Repairing.

A Household Arts Course—30 hours per week—for girls who wish to devote a large amount of time to the arts of home making.

12½ hours to Literature, Composition, Spelling, Penmanship, Mathematics, Geography, History and Science.

7½ hours to Physical Training, Music, General Exercises and Recesses.

10 hours to Household Arts.

An unusual amount of time, it will be noticed, is given to handwork, which takes the form chiefly of Typewriting in the Commercial Course, and which in the other courses is devoted to a great variety of useful labour. No work is undertaken except in response to a real need. The finished work must meet the need adequately, and must be performed with despatch and in a workmanlike manner. Pupils are therefore directed not only by teachers, but also by skilled journeymen who work with them. Beauty of design, colour and ornament are not neglected.

NEWTON, MASS.

Other schools of this sort, at which pupils do industrial work which has economic as well as educational value, have been established during recent years in Massachusetts and other States. Some of them take only pupils above the Elementary School age, although they are not required to have completed more than the sixth grade of the Elementary Course. Such schools as receive only pupils over 13 years of age, but who may not have completed the regular work of the Elementary School, lie on the border between Elementary Education and further education for industrial purposes. Such schools are more fully discussed in the Report on the United States under Independent Industrial Schools.

THE GRAMMAR SCHOOL.

The visit of the Commission to Newton was to see the Independent Industrial School and the Technical High School. Those to whom the Commission was indebted for the opportunities of the occasion conducted the Commission first to one of the Grammar Schools. In the Grammar School (the U.S. term for Public Elementary School) a printing office was found as part of the school equipment, and printing work was done by a number of the boys as part of the Elementary School course.

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The first aim was to develop the boys' English. The printing is done for the school and for the Principals of other schools. For example, arithmetic papers are printed instead of being put on the blackboard. Everything turned out is intended for use, and not merely as an exercise for the boys. After a little practice in printing the boys make fewer mistakes in spelling.

Some boys who had not done well in ordinary school subjects did so well in this department that they gained confidence in themselves and afterwards did better in all school work. The boys have a choice between Manual Training in woodwork and printing. The Principal of the school was of the opinion that if the choice lay between the two he would put printing in the school in preference to woodwork. While the printing does not bring the larger muscles into full action, he thinks the training in manipulation is as fine as in Manual Training in wood.

The boys who have had the printing in the public school obtain places more readily and obtain higher wages when they leave.

THE INDEPENDENT INDUSTRIAL SCHOOL.

In the fall of 1908 it was found that in the City of Newton, Mass. there were a number of boys who had reached the age of fourteen who were not profiting from the Grammar School work and likely soon to leave school but who could profit from a school in which hand work should predominate, with academic work and Drawing correlated closely with the shop work. A number of other boys were found who were doing excellent work in the grades, whose family circumstances rendered it impossible for them to complete a High School course, but who would make superior mechanics if given an opportunity to learn a trade or lay the foundation for a trade.

It therefore seemed advisable to establish in Newton a school which should be the intermediate step between the Grammar Grades and the occupation in which such pupils should find their life work; a school which should be industrial in character, aiming to lay the foundation for an industrial career; also varied enough in the industrial branches taken up to give each pupil a chance to prove his ability for some definite trade.

Accordingly the Newton Independent Industrial School was authorized by the Board of Aldermen of the City of Newton, Jan. 12, 1909, with the approval and subject to the supervision of the Massachusetts Industrial Commission (now consolidated with the State Board of Education).

RELATION TO THE PUBLIC SCHOOLS.

The school is governed by a Local Board of Trustees consisting of seven members. It is conducted independently of the regular public school system, although articulating with it.

Pupils are admitted who are over fourteen years of age and fitted to profit from the work given.

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While the Industrial School is primarily intended for boys who could not or would not profit from the High Schools, yet admission to it does not prevent pupils from entering the High School later if their academic and economic circumstances warrant it.

TEACHERS.

The policy regarding the instructors in this school is that only such men shall be engaged as teachers as have had actual shop experience sufficient to become recognized as journeymen mechanics, and have satisfactory qualifications in personality, character, academic training and teaching ability.

The aim during the first part of the course is to have the boys brought into contact with several lines of mechanical work in order to find out what trade each is best fitted to follow. In this respect it agrees with the Central Schools of London and Manchester and the Trade Preparatory Schools of Leeds and Ireland. During the last year or year and a half, each pupil specializes along the line of his greatest ability. The curriculum includes Woodworking, Machine work, Electricity, Sheet Metal Work, Printing, Mathematics, Mechanical Drawing, English, Commercial Geography, Science and History.

(7) INDUSTRIAL TRAINING IN ELEMENTARY SCHOOLS IN BOSTON, MASS.

When the "*Macdonald Manual Training Fund*" was provided to extend Manual Training in Canada, much helpful information was obtained from the schools of Boston, Mass., and particularly from Mr. Frank M. Leavitt, Supervisor of Manual Training in the Public Schools of that city. In a paper presented by Mr. Leavitt at a Conference on the Training of Children for the Trades and Practical Life, held in New Haven, Conn., April 27, 1910, the plan followed in Boston is traced. The following extracts present some of the salient points in greater detail than they were recorded in the notes of the Commission on the occasion of its visit:—

Boston has established various schools and classes in which industrial training is given to pupils in the elementary grades.

Our present educational scheme fails to recognize that the bulk of industrial workers must remain permanently industrial workers. The whole tendency of industrial development during the past two hundred years has been to concentrate in the hands of fewer and fewer men the management and direction of industry, until, while the theoretical possibility of rising out of the ranks to be a captain or a general of industry still exists for each individual, the probability is about as remote as that the promising boys in some senior class may live to be presidents of the United States, and for the masses such advance is absolutely impossible.

RELATIVE COSTS OF ELEMENTARY AND HIGH SCHOOL EDUCATION.

Our scheme of education is planned for the few rather than the many. It is a selective process, and the methods and machinery are adapted to those who go to the top.

Of course, no one would suggest that we should restrict the opportunity of any pupil, but we should remember that equal opportunity for all does not mean identical opportunity; and we should provide a differentiation for those who definitely plan to take only a fragment of the course, such a fragment as can be covered before reaching the age of fourteen, whether it be much or little.

Let me explain by a concrete example something of what is involved in this plan for an earlier differentiation. Let us take the cases of two Boston boys, eleven years of age, just about to enter the sixth grade, the sixth year in school. The parent of one boy says: "I am planning to send my boy to college." The parent of the other says: "I am planning to keep my boy in school until he is fourteen years of age, and then put him to work." What will the public school system do for these boys? It will admit the first boy to the Latin School, and will give him a six years' preparatory course at an annual cost to the city of \$102.00, or a total cost of \$612.00. It will permit the second boy to remain in the elementary school for his three remaining years at an annual cost to the city of \$28.00, or a total of \$84.00; \$612.00 against \$84.00. The first will have the advantage of small classes, highly paid and exceptional teachers, and a curriculum exactly suited to his requirements. The second will have the disadvantage of large classes, relatively cheaply paid and possibly inexperienced teachers, and a curriculum somewhat vague and decidedly general in its purpose, and interrupted at any point where he happens to be when he arrives at his fourteenth birthday.

I think you will readily agree that we owe something different and something more to this second boy. He is said to be typical of a large number of our boys, variously estimated at from 60 to 75 per cent of all those entering the schools of the United States. As I have said, our educational scheme has failed to recognize the needs of these—the majority of our boys. It is a vital defect.

MANUAL TRAINING AND INDUSTRIAL TRAINING.

Manual Training was introduced in response to a demand for industrial training, which began to take shape shortly after the Philadelphia Exposition in 1876. As early as 1878, thirty-two years ago, the Boston School Committee had reached the following conclusion: "The question of teaching trades in our schools is one of vital importance. If New England would maintain her place as the great industrial centre of the country, she must become to the United States what France is to the rest of Europe—the first in taste, the first in design, the first in skilled workmanship. She must accustom her children from early youth to the use of tools, and give a thorough training in the mechanic arts."

In 1906, the Industrial Commission of Massachusetts made an exhaustive report on Industrial Education, a report which has done more to shape thought and action than any other volume which has been written on this subject. The report devoted less than a half page to the subject of Manual Training, and the conclusion reached was as follows:

"It (manual training) has been urged as a cultural subject, mainly useful as a stimulus to other forms of intellectual effort—a sort of mustard relish, an appetizer—to be conducted without reference to any industrial end. It has been severed from real life as completely as have the other school activities. Thus it has come about that the over-mastering influences of school traditions have brought into subjection both the drawing and the manual work."

INDUSTRIAL TRAINING AND ELEMENTARY SCHOOLS

The present demand for industrial training is a revival of the earlier demand. Its keynote is "reality". It means the fitting of a real boy for a real job. There are some of us who believe that it calls for as close a duplication of real shop conditions as is possible and desirable, the turning out of a real product that will be readily used. It means the training of the rank and file of the industrial army.

Boston has undertaken the work, and it is now my purpose to describe briefly one of the earliest experiments in industrial training in the elementary schools. There was organized in September, 1907, what has been known as the Agassiz School Industrial Class. The primary purpose in establishing the class was to provide an experiment, the results of which would assist in answering one or all of the following questions:

(1) Is it possible so to modify the elementary school curriculum that it will become more effective in training pupils for industrial pursuits, while maintaining the same efficiency in preparation for high school?

(2) Will a considerable number of boys and their parents be interested in such a course of study, should it be established?

(3) If taken by boys otherwise likely to leave school at fourteen years, will this course have the effect of inducing them to stay longer in school?

(4) Will the pupils be as interested in manufacturing a product which is to be used by the city, as in making for themselves the ordinary manual training models?

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The experience of the three years would seem to indicate that all these questions should be answered in the affirmative. Each year, approximately 33 per cent. of the boys in the sixth grade of the Agassiz School have requested permission to enter the Industrial Class, and each year more than the average number of boys have been regularly promoted, so that at present there are 132 boys taking the industrial work. These boys are distributed as follows: Grade VI, 50; Grade VII, 44; Grade VIII, 38.

Fewer boys have left the school on arriving at the age of fourteen than would ordinarily be expected in this district, only two boys having thus far left the industrial class to go to work. The product has been a practical one, manufactured in quantity and used by the school department. It should be noted that the boys have done all of the regular work of the school, excepting the manual training which the industrial work supersedes.

Especially are the boys taught the value of material and of time, and the industrial value of the division of labor; and this is brought about by appealing to that incentive which has been the main-spring of industrial progress in all ages, the desire to produce an equally good article at less cost; that is to say, with less waste of material and less expenditure of labor.

It is believed that this experiment has been, on the whole, eminently successful and enlightening. It would seem to demonstrate the desirability of providing for those pupils electing it, an elementary introduction to industrial training as early as in the sixth or seventh grade. It would also seem to demonstrate the necessity of providing schools of secondary grade but with shorter courses than our present high schools, because it is felt that many of the boys on graduation from the elementary school will wish one or two years more of very definite and intensive instruction.

A similar class was organized in the Oliver Wendell Holmes School, the shop work, however, being cabinet-making.

In both of these schools the classes are ungraded and no pretence is made of fitting for high school. Ten hours a week are given to shop work.

Still another experiment is the Pre-apprentice School in Printing and Bookbinding. Boys in the printing class are fourteen years of age or over, and are supposed to remain in the school for two years and to take apprentice positions at the end of that time. While no written agreement exists, the School Committee and the Typographical Union have a tacit "understanding" regarding this class. Both boys and girls are admitted to the class in bookbinding, which is not yet organized on the pre-apprentice basis, but rather on a basis like the Agassiz class.

The least we should be satisfied with, is a flexible educational scheme which will provide:—

First: Manual training in all elementary grades at least two hours a week.

Second: Industrial classes open to pupils so electing, which will prepare for high school, while giving nevertheless five hours a week to some practical constructive work, awakening an interest in things industrial and giving a familiarity with tools.

Third: Ungraded industrial classes open to boys so electing, for whom high school for any reason is out of the question—classes which prepare for and lead to industrial schools of intermediate grade or, should the boys leave at fourteen, prepare for a more intelligent entry into the lower grades of industrial work.

Fourth: Diversified secondary schools.

(8) NATIONAL EDUCATION ASSOCIATION.

The National Education Association was founded in 1870, and reorganized in 1906 under a special act of Congress granting it a charter. In 1880 the National Council of Education was formed, consisting of 120 members selected from the general association, to serve for 6 years, and this constitutes an inner council to consider topics on which general action is desirable. The corporation is managed by 5 trustees, and a board of 28 life directors and 50 elected directors, representing geographical divisions. Its work is carried on through 18 departments, composed of members specially interested in a particular phase of education (e. g. elementary, secondary, agricultural education, child study, manual training, etc.) Annual meetings are held in July, the Proceedings of which are published.

The following are extracts from the Report of the Committee of the National Education Association on the "Place of Industries in Public Education" (1910.)

"Those educational reformers who have striven to reorganize education, making it more interesting and more in accord with the nature of the child, have usually been pronounced advocates of constructive work. We may dis-

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tinguish between two general uses for which it has been employed; (a) to give motive for school work otherwise meaningless and uninteresting, and (b) to render more positive and lasting the results of instruction.

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"It is at this age that the rate of elimination of pupils from school becomes portentous. The reasons that cause children to leave school are very numerous, but unquestionably a very large proportion, at least a majority, give up because they cannot feel that it will repay the sacrifice of effort or expense or both. Other reasons are for the most part contributory. This one is fundamental. There are two classes of children to whom school work does not seem worth while. One of these consists of pupils who can and do get on well in the school but find the activities on the outside more interesting and profitable. The other is composed of pupils who do not prosper in the school. Such children naturally grow discontented. No one can be expected to regard as worth while for him that which he is incapable of doing. Moreover in such a competitive atmosphere as a school merely to pass means practically to fail.

"For those who fail in the older studies of the school the constructive work may offer a field for success. For both classes it should constitute the main part of the later school program. As an integral part of the preparation for life, it deserves a place proportionate to the number of those who need such preparation and the amount of such preparation it is possible and desirable to give.

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"Since a large part of the population, three-fourths to nine-tenths, accordingly to locality, never succeeds in entering any other than the Elementary School, three obligations, distinct and somewhat conflicting in the demands which they make upon the curriculum, would seem to be placed upon this school:

1. To develop as much as possible of culture—enrichment of life through knowledge and appreciation of human achievement in history and art.
2. To give the best possible start towards the life-work in which the person will be most content and most efficient.
3. To furnish the best possible training for citizenship through developing a sense of social obligation and by preparing for effective membership in the various social groups.

To these might be added the aim of giving to a minority the best possible preparation for continuing their education in higher schools.

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SPECIAL INDUSTRIAL CLASSES.

"However, even with the fullest development of the industrial element in the regular course, the educational needs of a large percentage of the pupils will not be met. This is especially true in the cases of those pupils who do not readily respond to our usual methods, and who, therefore, do not progress regularly from grade to grade.

These pupils leaving school at fourteen, especially when they leave from the lower grades, are unable to secure occupation which promises regular and satisfactory advancement. These workers, entering as they do into unskilled or into highly specialized industries where the subdivision of processes is minute, require for their own well-being and for the benefit of their employers a general rather than a specific industrial training.

For these reasons it is extremely desirable to introduce industrial classes in connection with the regular work of the last two or three years of the Elementary School that will appeal directly to the above groups of children and occupy four or five hours a week.

Admission to such a class might be limited to pupils fourteen years of age, or those on whom the school has no further legal hold. It would obviously interfere with entrance to High School, and should presumably be placed before the pupils as an inadequate substitute for a secondary course, none being admitted except upon evidence of inability to afford or profit by the conventional High School course and upon written consent of parents.

The work of such a class might deal with a small or larger number of industries according to local conditions and requirements. In either case, however, with such a time-allowance it could clearly be more thorough, systematic and technical than that of the regular Manual Training Courses. It might well be expected not only to give a semi-vocational preparation to a considerable number of the more mechanically minded boys, but also to lengthen materially the terms of their school life—in which case both the industrial and the academic work secured would be for the pupil just so much clear gain.

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"From the evidence which the Committee has obtained, it is clear that boys who enter mechanical trades, almost without exception, leave the public schools before graduating from the Grammar (Elementary) School. It should be recognized therefore that the beginnings of trade education, if such education is to articulate with our present school system, must be had in schools that will draw their pupils largely, if not entirely, from the class of boys who have not graduated from Elementary Schools. Such schools (Intermediate, Industrial or Preparatory Trade Schools) cannot therefore be really parallel with existing High Schools.

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"The courses of study for this type of school must always be sufficiently intensive on the vocational side to give them the necessary economic value, while at the same time the instruction should be suited to both the mental and the physical capacity of pupils from fourteen to sixteen years of age. There should be in the curriculum, therefore, nothing that is not of direct assistance for preparing pupils for work in the industries."

(9) FROM "CONVERSATIONS" WITH LEADERS.

Information from "Conversation" with DR. T. M. BALLIET, Dean of the School of Pedagogy, New York University.

Dr. Balliet had very strong convictions that there ought to be differentiation in the kind of work which pupils under fourteen do in the Elementary Schools. There is very little differentiation below High School, that is, during the first eight years of school life. There is perhaps more in New York City than elsewhere. In some Elementary Schools they take young people of fourteen or approaching that age, who are to go into the stores as cash-boys, saleswomen, etc., and give them a special training in rapidity in legible flowing writing, rapid addition, and accuracy in figures to a degree that would be a waste of time for other children who are not to go into such employments. That plan could easily be pushed further.

A law on the Statute Books of New York State which has not yet been worked out in the schools provides for differentiation in Elementary Schools at the end of the sixth school year; that is usually at 12 years of age, one class of pupils then being given a good deal of Manual Training and the beginnings of industrial work. There is another differentiation for those who are to go to High School, and a third for those who are to go into commercial business. There is no provision yet for the teaching of Latin, even to those who are to go to College. It seemed to him that a differentiation was needed there for many reasons. All over Europe they separate, at a much younger age than we do, children who are to go to the University or higher institutions.

DIFFERENTIATION IN THE WAY SUBJECTS ARE TAUGHT.

The keeping together for eight long years of all children, the dull and the bright—and they vary very much—with such different aims in life—one intending to go to college, another to a profession and another to work at fourteen, necessarily involves waste. The course is usually arranged more or less for those who go to higher schools.

The school men in the United States are in the midst of the discussion, and many are in the dark as to what is to be done with Industrial Education before High School. There is a great deal of wild talk, so one would think the whole elementary curriculum was to be pointed to Industrial Education. The thought

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of differentiation is not widespread yet, but the schools are running up against the difficulty. Different studies should be taught differently.

Take Arithmetic for example. If a child is to go to High School or College, and studies the theoretical part of arithmetic as the basis of algebra and the higher mathematics, it would not matter about his knowing the commercial side of arithmetic, beyond calculating interest and a few such direct topics, because if he goes into business he can pick that up very soon after his full college course. The boy that is to go to work would waste his time on the theoretical part of arithmetic. He wants to get the direct side of it, and ability to deal with problems that come up in the ordinary workman's life.

So with Geography. The child preparing for College should have the scientific part of Geography; Physical Geography and the causes and relations would be the main thing taught to him; while the child that is dull in Geography would require a geographical reader describing different countries in an interesting way, and would study maps and memorize the places, and deal with causes and relations as far as he could. But the treatment of Geography should be different for the two, and it should be a good deal briefer for the child that is to go to College.

So in History. American History can be cut down a great deal, and the child that is to go to College can begin European History, Mathematics and the so-called higher studies earlier than the other child.

Bright children in the United States lose time in the schools, for the teachers aim to get the bottom ones promoted, not to have too many stop over, and thus all instruction aims at the lower third of the class. This cannot be remedied by jumping the grades. Some of that has been done, for the teacher is willing to let those jump who are really far ahead of their class, but those who are just a little ahead, 'who could do harder work and more,' the teacher will not promote into a new grade, so they simply mark time. There are reasons for differentiation there. A good many children in the United States cannot tell until pretty well on in their studies whether they will go to College or even to High School.

The bright child and the dull child should not be taught by the same methods; that is true of nearly every study. The brilliant child can put in the "dropped stitches" in the instruction, but with a dull child you must go step by step, and if one step is omitted the child cannot grasp the next one. With brilliant children study is made distasteful by putting in all the steps, and it has very much the same effect as of explaining a joke, whereas the children want to "see the point" themselves. We all realise this in reading a book like Emerson's Essays, which is suggestive because there is so much between the lines that is not said; if it were said it would be a very dull book: we prefer to supply it ourselves. As teachers aim at the lower third of the class, the talk is more or less insipid to the bright scholars, and they lose time.

MANUAL TRAINING DISCOVERS APTITUDES.

Children who are to go to work at fourteen ought to take more Manual Training, more Cooking, more of the things that would enable them to become productive laborers, and enough of those beginnings of industrial work to enable them to "find themselves." One reason why the Elementary School curriculum should be broad and have a good deal of Manual Training and those other things is not only because that sort of training is good for all-round development, but because it enables the children to try themselves on various things. With the old curriculum which had only book work, a boy could learn whether he could or could not do book work; and if he could not, nothing in the school enabled him to discover what he should be. He simply got discouraged and left school. It is the duty of the school to make provision in the school by which all can actually discover what they can do.

A boy who is skilful with his hands and of a mechanical turn of mind ought to discover that in school, and not be thrown out into the world without aim to blunder and perhaps never find his place.

Manual Training is good for all children, and that is the thing to establish and push in Elementary Schools. Every child ought to have any work that develops it, and a good variety of it. The relation of Manual Training to industrial work is somewhat like that between the College course and the professional course in a law school. It lays a particular basis of motor training for the specialized sort of work that is learned in a trade. The thing to keep in mind in trade instruction is to make workmen versatile, so that they can turn from one thing to another. In learning their trade in a shop they learn only to run one or two machines, and when these become obsolete and the man is 40 or 45 years old he is apt to be stranded. Before they take up their trade children should get as much academic training as they can take, and a pretty broad hand training.

DIFFERENCE BETWEEN MANUAL TRAINING AND INDUSTRIAL TRAINING.

The principal thing to the children is not that they are making things for the sake of learning, but rather for the sake of having something to give to somebody. That is the industrial motive; so there is no difference to the child between Manual Training and Industrial Education. The child ought to have the motive to do the thing for the sake of the thing made. On the other hand, the teacher's motive in Manual Training ought to be to give the child a broad motor training and an insight into the laws of mechanics.

In industrial work, of course, the teacher has an interest in the thing made as well as in the process of making it; and it is necessary to push that far enough to get speed. In Manual Training we do not emphasize speed; we let a child go as slowly as he wants to provided the work is of good quality. But in an Industrial School with pupils that are to go out and practice a trade, they must not only do things of good quality, but in a reasonable time.

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A good instance of the latter is found in the Williamson Trade School near Philadelphia. The head of that school was a teacher of Mechanical Drawing. After holidays he would take the senior class alone in the Drawing room, everything being just as it would be ordinarily with nothing got ready; then he would take out his watch and tell them the time; then in the presence of the class he would get everything ready to execute a piece of work in Mechanical Drawing as rapidly as he could do it of good quality, and jot down the time. He would then say, "I will give you 40% more time than I took, and at the end of this year all those who can do that in 40% more time will graduate, and others will not." They worked for speed when they had ability for quality. That is a pretty good principle.

MOTIVE IN EDUCATION.

Speaking of motive in education Dr. Balliet said the children eat their breakfast because they like it, but the mother has another motive, she watches what they eat. It is that way in study. The really great problem that some men are working at now in the Elementary Schools is how to present each subject and each part of each subject in such a way that the child will want to learn that thing to help him to solve some puzzle in his own life that he is now interested in. The child feels no interest in learning something that will do him good 20 years from now when he is grown up.

From "Conversation" with DR. CHARLES L. RICHARDS, Director of Cooper Union for the Advancement of Science and Art, New York.

New York City has a scheme of Manual Training generally representing shop work in the last two years and other things in the years below; but that work has not been, at any rate until very lately, so much influenced by industrial practices and vocational requirements as by rather pedagogic formulae. Dr. Richards said that fourteen years ago he turned aside from technical work to take up the matter of training teachers for Manual Training because he believed that that was one of the great means for affecting the whole situation, and for ten years he was head of the department at Columbia University. He still believes in it as a tremendous thing at the bottom of any full and complete system of Vocational Education. We must have in the Elementary School experiences that deal with the industries and with vocations to the extent of developing intelligence in regard to them—an understanding of their qualities to the extent of leaving the boy and girl at the end a freer choice of vocation because of stimulation in those different directions.

MANUAL TRAINING AND INDUSTRIAL EDUCATION.

Within the last two years he had noticed at Conventions and other meetings upon Industrial Education the frequent reference to Manual Training, whereas five years ago, when the interest in Industrial Education was growing so rapidly,

it was the custom to decry Manual Training as being a mere namby-pamby, a school teacher's product and something that had no vital quality about it or any special meaning in the field of Industrial Education. He had also noticed that manufacturers and employers in the last few years had come to see that at the bottom there should be a good system of Manual Training in public schools—though nobody has yet discovered what is meant by a good system. Beyond that there has been no reaction from above to any great extent, though he thought it would come in the near future.

VOCATIONAL GUIDANCE.

As the matter of Vocational Guidance develops, the question of the pupils' careers must be viewed through what the community represents in vocations; data must be had of those vocations showing how the various industries lead forward in a progressive way to certain remunerative trades. If these could be reduced to terms of social and economic value to the school system, and used in advising boys and girls as to their after careers, there would be a more effective reaction of that environment on the school curriculum than has ever been the case.

Miss Julia Richmond, who is a District Superintendent of Public Schools, is trying a similar experiment on the lower East Side, taking boys and girls from the public schools at 12 and 13, sometimes 13 and 14 if they are backward, just previous to the working period, and giving them a preparatory training in vocational ways which will not make them competent trades people but will put them in the way of "finding" themselves and give them a little gumption about industrial work. This work is more intensive than Manual Training. It is for ten hours a week, with twenty hours academic work.

That is a rather radical thing, and with the Fitchburg work represents a very new element, but it will undoubtedly be a long time before the principle they represent becomes predominant in the U.S., for the American people regard the Elementary School as a sort of sacred institution dedicated to general education and not to be touched in any other way. In fact it is only of late years that they have been content to allow advocates of vocational education to take the period between 14 and 16; and that only because they see that the boy and girl are going to leave. This is one of the things that is working for the best good of the great mass of the boys and girls leaving school—the plan of reaching down a little below fourteen and trying to help them to get their working powers trained before they leave school.

(10) PRE-VOCATIONAL WORK IN ELEMENTARY SCHOOLS IN GERMANY.

The Commission did not find special classes or courses in the Elementary Schools of Germany which correspond to the Pre-Vocational or Trade Preparatory Schools of England, Scotland or the United States. The Volksschule of Germany, with its 8-year course from 6 to 14 years of age, is provided definitely

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for those who intend to leave school and enter upon employment at 14 years of age. The whole course of instruction from 10 to 14 years of age is based on that understanding. The pupils who are to continue at school after 14 are expected to enter one of the Secondary Schools at the age of 16. The courses in the Lower Secondary Schools (Pro-Gymnasium, Pro-Real-Gymnasium and Real-Schule) continue 6 years; those in the Higher Secondary Schools (Gymnasium, Real-Gymnasium and Ober-Real-Schule) carry the pupils on during 6 years. In the city of Munich since the fall of 1907 all boys have been required to remain at the Elementary School for an eighth year which is devoted mainly to manual work. The purpose is to give a definite bias towards their choice of a skilled occupation. This eighth year class is intended to form a basis or foundation for the Technical or Continuation Schools.

DR. KERSCHENSTEINER'S PRACTICE.

Dr. Kerschesteiner stated to the Commission that ten years ago of the 5,400 boys in the Continuation Schools of Munich, nearly 1,000 were in unskilled employment and in danger of becoming loafers. The result of bringing workshop instruction into the Elementary Schools, and of making the eighth year compulsory, was that in 1909 of 2,200 boys who left the highest class, 2,150 went at once into handwork or other skilled employment. This surpassed the expectation of the school authorities. While in part it was due to the re-modelling of the Industrial Continuation Schools with their fifty workshops, the first cause was undoubtedly the pleasure in the handwork itself gained in the Elementary School. The effort has been to get both Elementary and Continuation schools out of their isolation from all other influences affecting the life of the town child by connecting the work more closely than elsewhere with the activities of the workshop and the home. "Under the influence of joy in its work the child is more receptive, and we gain power to influence its other likings."

BOOKS TO SUPPLEMENT EXPERIENCES.

In following out his fundamental aim for Vocational Education, Dr. Kerschesteiner has applied certain principles and methods to the Elementary Schools and courses. A statement of the governing principles will shed some light on the problems of education for communities in Canada.

Instead of beginning the work of the school with the analysis of words and sounds, and drill in word and sentence formation or building, the child begins his school life by the observation of the things in the school, in the home, and on the street, and by the use of these as a basis of the oral and written lessons in language, drawing, mathematics, history and geography; that is to say, the things of interest to the child in the world in which he lives are used as the material for his educational progress and growth.

From the time the child starts at school, he, or she, is regarded as an active living being, and not as a reservoir to hold or register a record of the things

set down in books to be committed to memory, to be available when called for. By means of observation lessons and lessons in science and industry, the child throughout the grades is being treated as an active being seeking growth and development through self-expression and self-realization.

When books are introduced, they are books that shed light upon the real life interests of the child and which widen the instruction and information given in the school itself.

LIFE AND WORK ARE MADE THE CENTRAL FEATURES.

Up to a few years ago, the general Continuation Schools of Munich had carried on instruction which was largely a repetition and enlargement of the bookish work of the Elementary Schools, and that had a little interest for the young apprentices. Dr. Kerschensteiner proposed a new course of study or kind of work for the Continuation Schools, the central point in which was in each case to be the shop work or occupation of the pupil. Believing that the trade or occupation was, at that age, the centre of interest for the young worker, he introduced many different kinds of shops into the schools for apprentices and in these the typical processes of the various trades are carried on under the direction of competent workmen as instructors. He connected the work in drawing, in mathematics, in civics, and in fact all the work, with the shop practice.

The marked success which has resulted from this course indicates the wisdom of making the major life interests, appropriate for the pupil at any stage of his development, the central feature in the course of study.

DAY INDUSTRIAL SCHOOLS IN BAVARIA.

In Bavaria a number of Continuation Schools have been organized as Day Industrial Schools. Students are admitted to these after completing 6 years in the Elementary School course and when they are about 12 years of age. The course is sometimes one year and sometimes two years. In the former case the one year replaces the seventh year in the Elementary School, while the two year course takes the place of both the seventh and eighth years.

These schools aim at providing vocational education before the boys begin their work as apprentices. In this respect they differ from the ordinary Continuation School, which only admits pupils who have gone to work. These Day Industrial Schools require the full time of the pupils, and Apprentices' Continuation Schools and Drawing Schools for handicraftsmen are united with them. In Bavaria there are 16 of these schools with about 500 pupils.

In some other schools in Germany of a similar character the qualification for admission requires that the pupils shall have completed the course in the Elementary School.

These schools appear to be successful. Students finishing the course have the usual apprenticeship shortened as they are able to take up the work in the shop advantageously from the very beginning.

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It is to be observed that these schools in Germany, with the exception of Munich, do not include workshop instruction where the students are made acquainted with materials, tools and machinery, and where they acquire some skill in the use of these. The instruction is theoretical without workshop experience, and in that respect these schools differ from the Trade Preparatory Schools of England, Scotland, Ireland, and the United States.

(11) PRE-VOCATIONAL WORK IN ELEMENTARY SCHOOLS IN FRANCE.

SUPPLEMENTARY COURSES FOR BOYS.

These classes are intended to supplement the primary course for those pupils who, having completed the Primary School, will enter manual occupations. Pupils who hold the certificate of primary studies are eligible from 12 years of age. The total number of hours per week is 35, of which 15 are devoted to general education and 20 to Modelling, Drawing (freehand and geometrical), Singing, Recreation, and Manual Work. In the second year the number of hours for Drawing is reduced, and that for Manual Work proportionately increased. The general subjects are taken in the morning, the practical work and Drawing in the afternoon, the time-table for a week being as follows:

Morning.

Arithmetic and Accounting.....	1 $\frac{3}{4}$ hrs.
Geometry.....	2
Civics and Common Law.....	$\frac{3}{4}$
History and Geography.....	2
French.....	3
Gymnastics.....	1
Physical Science and Technology.....	2 $\frac{1}{2}$
Morals.....	$\frac{3}{4}$
Recreation.....	1 $\frac{1}{4}$
	<hr/> 15 <hr/>

Afternoon.

Art Drawing.....	7 hrs.
Modelling.....	2 $\frac{1}{4}$
Geometrical Drawing.....	2
Manual Work.....	6 $\frac{1}{2}$
Singing.....	1
Recreation.....	1 $\frac{1}{4}$
	<hr/> 20 <hr/>

In the second year—6 hrs. Drawing, and $7\frac{1}{4}$ hrs. Manual Work.

These classes are parallel to the Higher Primary Schools, but have more latitude in their syllabus, which is a continuation and amplification of the primary course. They may have smaller classes than the Higher Primary School.

SUPPLEMENTARY COURSES FOR GIRLS.

These are arranged on the same plan as the classes for Boys, the total number of hours per week being $40\frac{1}{2}$, of which nearly one half may be counted for general education and the balance regarded as vocational. The time-table is as follows:—

Morning.

Morals.....	1 hr.
French.....	$4\frac{1}{4}$
Arithmetic.....	$2\frac{3}{4}$
History and Geography.....	$2\frac{3}{4}$
Science.....	1
Hygiene and Domestic Economy.....	$\frac{3}{4}$
Singing.....	$\frac{1}{2}$
Gymnastics.....	$\frac{1}{2}$
Civics and Law.....	$1\frac{1}{2}$
Cooking and Ironing (or Commercial).....	1
	<hr/>
	16
	<hr/>

Afternoon.

Dressmaking.....	4 hrs.
Whitewear Making.....	4
Millinery.....	2
Drawing.....	8
Singing, Gymnastics.....	$\frac{1}{2}$
Book-keeping or English.....	2
Theory of Dressmaking.....	2
Theory of Whitewear Making.....	2
	<hr/>
	$24\frac{1}{2}$
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HIGHER PRIMARY SCHOOLS IN PARIS.

Schools providing higher primary instruction are designed for young persons who are going to enter business or banks, industries or industrial arts, public or private offices, and vocational schools that do not require classical studies. They even lead to the bachelor's degree, to the Central School, or to the courses preparatory to the Day Schools of Mining, Bridges and Highways.

These schools, as a rule, take only day boarders. The instruction is free. Those who can pay are furnished the noon meal for a trifling sum; others receive

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meals free. Pupils enter on an examination open to pupils of private as well as public schools. Candidates must have been within the following age limits on October 1st of the year of examination: 1st year, 12 to 15; 2nd year, 13 to 16; 3rd year, 14 to 17..

There is no exception as to age limit. The ordinary course is 3 years; then the pupils must be examined for final certificate of higher primary studies.

No pupil is allowed to pass from 1st to 2nd year, or from 2nd to 3rd year, unless he has proved by positions and examination that he has profited by his courses.

The 3rd year class has two sections—Commercial and Industrial. In the latter, greater importance is attached to Mathematics, Physics and Drawing; in the former, to the applications of Arithmetic and Algebra to commercial and banking operations, Modern Languages, Commercial Geography, Penmanship, Accounting, Stenography, and Typewriting.

A 4th or supplementary year was opened for pupils holding the certificate of higher primary studies who show particular aptitude for the sciences, and they receive more extensive and special instruction to enable them to compete for the great Professional Schools.

By ministerial decree these schools are allowed a certain amount of liberty in fixing their programmes. For the first 3 years they follow the programmes of the Department as a basis for teaching; but these programmes, as well as time-tables, may be modified according to the existence either of a 4th year of studies, or of special sections which prepare pupils for definite careers. The 4th year programme, and also that of special sections, is made out for each school by the director or directress, after consulting the professors.

What gives a distinctive character and a special value to the instruction given in the Higher Primary Schools is the large number of special professors.

SECTION 4: EXAMPLES OF THE PRACTICE IN ELEMENTARY SCHOOLS IN TWO CITIES.

An embarrassment to the Commission has constantly arisen from the necessity of choosing between places and schools, to be cited for illustration of the best which was found as preparatory for, or as part of, Industrial Training and Technical Education. In many schools in Canada excellent examples were examined of correlations of Hand Training with book studies. Even where not much had been done in the organization of courses with that end definitely in view, the teachers generally said they were aiming towards as large a measure of that as was practicable under their circumstances. These matters are reported upon in Part IV of the Report.

The extended descriptions for Los Angeles, Cal., and Cincinnati, Ohio, give an outline of those features which the Commission considers will be suggestive and instructive for Canadian authorities.

(1) LOS ANGELES, CAL.

The school population of Los Angeles is 39,000, of which 6,500 are in the High Schools, promotion being made from Public to High Schools on recommendation of teachers of Public Schools. The following particulars of the Public School course are cited as representing what is being done by one of the most advanced and advancing communities whose schools were visited in the United States.

As set forth in a report of the School Board, the Public School course has been drafted after the high ideal expressed by Ruskin: "Education is to make people not only do the right things, but enjoy the right things, not merely industrious but to love industry, not merely learned but to love learning, not merely pure but to love purity, not merely just but to hunger and thirst after justice."

It is not offered as a perfect plan of school work, but the Board believes it is a step in the right direction. An effort has been made to cut away the useless parts and to make the course of study thoroughly practical throughout.

Mechanical Drawing.—A thorough course, put on a practical basis as far as possible for the convenience of those who work in the shops. Lectures are given illustrated by blackboard drawings, and diagrams. Further instruction is furnished in the form of blue prints and notes prepared by the instructor, but most of the instruction is individual.

Manual Training Course.—In addition to the shop work for those already engaged in the trades, a course similar to the manual training course of the high schools is presented. Sufficient time is given each subject to enable the pupils to understand the general principles of each trade, and in this way it is hoped that many boys will be enabled to decide for themselves in which branch of industry they may become most proficient.

The following subjects are presented:—Simple Bench Work in Wood, Pattern Making, Cabinet Making, Forging, Wood Turning, Machine Shop Practice, Mechanical Drawing, Elementary and Advanced, Elementary Architectural Drawing.

When properly qualified, pupils may elect certain courses and omit others; for instance, forging, foundry and machine shop work may be taken and wood-working omitted. In order to take up cabinet making or wood turning, a course in simple bench work in wood, similar to the work in the seventh and eighth grades of the day schools, must have been satisfactorily completed. The course in cabinet making must be completed before taking up pattern making. Persons who so desire, may spend more than one year in the cabinet work in order to make more substantial pieces of furniture.

Mechanical drawing must also be a part of each one of these courses.

Students for this course must be at least 16 years of age.

ARITHMETIC AND READING.

Several of the routine and traditional parts of Arithmetic have been eliminated entirely, but more attention is given the essentials of that important subject than heretofore. The work in Reading is outlined with a view of teaching pupils not merely how to read, but to read. The lists for home reading are an important part of it. More adequate provision is made for Spelling than in the past. The work in Writing is given both more time and more attention. English is given a large place in the course, and Grammar the small one it deserves. The most important modifications have been made in the knowledge subjects, such as History, Geography, Literature, and Nature Study. The common schools try to provide each child not only with the form, but also, as far as possible, with the content, of knowledge. These important studies are rightfully entitled to a larger measure of attention than the older education gave them.

With the conviction that instruction in morality is the most important part of school work, a course in the fundamental virtues, has been introduced to the end that no child may go forth from the schools without having had the lessons of honesty, uprightness and honor impressed upon him.

And being persuaded that all these things are of no avail unless the mind be habituated and trained to keep its body strong, provision has been made for daily lessons in the proper methods of walking, sitting, standing and breathing, that the schools may not fail to do their work of ministering to the health of the children in them.

The directions to teachers on the subjects which form the basis of Technical Education are interesting :

WRITING.

Finger writing is not allowed. The fingers are too short to propel the pen rapidly and easily, and consequently soon tire and fail to do writing easily and well. Finger writing is easy to learn, but tiring to use and much too slow and ugly for commercial purposes. We want instead to write with the muscles of the forearm. The half-arm movement is somewhat difficult to acquire, but when it is once learned it is easy and in all respects more satisfactory than the finger movement. Nothing but practice will bring the ability to write a good hand. Therefore the first necessity in learning to write well is that each teacher and each pupil stick to the thing daily and not only in the writing lesson, but in the spelling lesson and in every other lesson in which writing is required.

SPELLING.

The teaching of spelling must not be allowed to interfere with the teaching of writing. Position and movement are just as important in writing a spelling lesson as in a writing lesson. During the first year the writing should be entirely upon the blackboard. The writing of words in columns should be entirely given up in all grades. In place of narrow strips of paper the standard foolscap sheet should be used, and the words written from left to right one after the other until the line is filled. Too great emphasis upon the necessity for neatness will be sure to produce finger writing, the thing which we are striving with all our hearts to avoid. See that the spelling lesson is written according to the principles taught in the writing lesson, or not at all. The tendency of children to whisper words over to themselves while they are studying is probably nature's plan for re-enforcing the impression of sight by adding that of sound. The statement coming from many schools for defectives, that it is very difficult to teach the blind to spell, whereas the deaf learn without great effort, would seem to bear out the conclusion that impressions through

the eye are stronger than those coming in by way of the ear. To these forms of memory must be added the motor memories whereby the hand automatically writes the word that is in the mind, for it is ability to write the given word and write it in conjunction with other words in a sentence that is demanded. The teacher should strive after two main objects, a clear picture of the word as it looks on the page, combined with an audible or whispered iteration of the letters which compose it; and a readiness in transcribing with the pen this auto-visual image.

DRAWING.

The purpose of art education is not so much the securing of scientific accuracy as it is the encouraging of appreciation of what is good along art lines. We do not aim to make artists of our pupils, but we believe that only through practical experience in drawing and painting can they acquire observant, discriminating and intelligent eyes. The child, in his effort to create, gains a knowledge of what is good in shape, filling and color. We want our pupils to become aware of the good things in art, and to apply this knowledge not only to their drawings but to the furnishing of their homes and the choosing of their pictures and clothes. The child pays too much attention to detail, allowing the main idea to suffer. Because of this tendency toward over-elaboration, the value of simplicity in environment and personal expression must be emphasized. Art study should not remain a thing apart, but enter into the actual life of every child. The most important line of work in the drawing course is composition or design, because it supplies the basic principles of all art work. Any drawing in which special attention is paid to the pattern and the space divisions is a design. We begin composition in the lowest grades. There is opportunity even in a little child's work for individual selection and arrangement. In every grade, in every lesson, there should be opportunity for the pupil to exercise his individual choice in order that the work may be more than mere imitation.

NATURE STUDY.

In nature study there exists the happy combination of sense-training, motor-action and life out of doors. The beauty and order of the world acts to call forth the marvellous development of the child. In addition to the study of plants, flowers, animals and their industries, insects, birds, the heavenly bodies, weather, combustion, etc., instruction is given in all grades and in all classes during the entire school course in manners and morals and upon the nature of alcoholic drinks and narcotics and their effects upon the human system.

AGRICULTURE.

It is expected that in each class the teacher will introduce as far as possible simple experiments illustrative of the subject under consideration and encourage such experimentation by the pupils at their homes. Much opportunity should be given for class discussion and occasional written descriptions required. By arousing a proper interest in this subject it can be made a valuable adjunct to the home life of the pupil and also serve to engender a proper appreciation of the value and dignity of agriculture, the basic science of life.

PHYSICAL EXERCISE.

The school must set aside regularly-recurring periods when the mind can be rested, and the body strengthened by pleasing, helpful exercise. In the selection of muscular exercises the teacher should take those which tend to secure for the child: (1) A desirable hygienic effect on the body as a whole, for which nothing can take the place of the rollicking romping games which are played out of doors. Active games of the sort ordinarily played by school children are perfectly safe and healthy for boys and girls when not carried to extremes in duration and intensity. A moderate amount of fatigue is not unwholesome, but, in general, the game or exercise should stop short of severe fatigue. Every teacher should interest herself in the outdoor activities of her children, and seek to foster in her pupils a wholesome interest in such forms as will make for mental relaxation and fine physical tone. She will find that with thought and study she can suggest many games and activities to her classes which will prove interesting and profitable, and at the same time thereby indirectly increase her hold upon the affections of her children. (2) Certain desirable special effects, most important among which are the correction and prevention of faults of form or carriage of the body at rest and in motion. These faults are: failure to hold the neck erect; round or stooped shoulders; curvature of the spine; undue protrusion of abdomen. The physical exercises of the school room should be directed toward securing work for the big muscles of the back and neck, and to stretching the muscles of the breast, rather than to the

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exercising of the smaller ones of the arms and legs, which can safely be left to the activities of the playground. Teachers will therefore be required to devise such suitable breathing and muscular exercises, and to give them to their classes at regular times each day. As far as practicable, when giving these muscular drills, the windows and the doors should be thrown wide open to the fresh air, or better still, if it can be done, have the drills conducted out of doors, in the open air.

MANUAL ARTS.

This course does not include the introduction of useless talks by teachers on topics not directly related to the work in hand, but it does assume that the construction work of the pupils should be made intelligent, and that a sufficient number of "whys" and "wherefores" regarding the work should be given in a manner that will closely relate the pupils' work to their immediate surroundings. It also requires and admits more individual choice and planning by both teachers and pupils, and it enables teachers to see the industrial processes in the schools as types of the industrial processes by which society keeps itself moving. This course of procedure will eventually lift the teachers out of dogmatic limitations. It provides also for large and useful pieces of work, a practical sequence of constructive principles, and introduces and makes pupils acquainted with a great variety of materials. It demands that the teachers must be able to draw and illustrate, group, classify and originate.

In general, the work for the third and fourth years contemplates cardboard construction and work in the textiles; that for the remaining grades comprises work in wood, and, to some extent, in other materials.

The plan contemplates that in addition to other things, pupils at the end of the eighth grade should be able to make a simple working drawing, read a simple blue print, and understand how blue prints are made.

DOMESTIC SCIENCE.

It is a generally accepted standard that only those subjects shall be admitted in the public school curriculum which have a vital bearing on life, and it is on this basis that domestic science has acquired its position in the elementary schools.

We claim that "right living should form the fourth R in education," and that no subject is of more importance than domestic science. In our work the sociological aspect comes first, but we have arranged the course so that the educational side is not lost sight of. There is a rich field right here—the food problem in many different phases: the production and manufacture of food materials, their digestibility and their wholesomeness, the study of the food elements and the effect of heat upon them.

We begin to prepare the way for physics and chemistry, bacteriology and industrial history, while, at the same time, we are continually training in neatness, order, foresight and personal responsibility. We work both individually and in groups, thus fostering a spirit of mutual helpfulness, while we also develop each child's thoughtfulness.

CLOTHING, FOODS AND HOUSING

The work begins in the fourth grade (A4), with simple problems in sewing which are designed to meet the requirements of the child nature, and at the same time give practice in the fundamental stitches. In the fifth grade the same plan is followed and more complex problems are given, but all of such nature that they may be completed before the interest of the pupil has been lost. Following this work comes a course in simple drafting (by measurements entirely), and the making of undergarments for themselves, and where the work is completed and time allows, a simple wash dress may be made before the completion of the work.

During the course, talks on different kinds of cloth, their value, use and cost are given, together with a simple study of their production and manufacture. The study of decoration, its use and abuse, comes in connection with the garment making, and the aim here is to lay a foundation upon which others may build securely.

When the pupils begin their cookery, they have reached the age when they want to know the reason of things. Hence we have tried to combine the discussion of the theory with the practical cleaning and cookery in proportions which would make the work not only intelligible to the pupil, but alive and desirable as well.

Beginning with water and milk we go on to the study of fruits, sugar, starch, vegetables, eggs, meat and fish. Following these come simple combinations and a sequence of batters and doughs.

In the last year of the course a few lessons are devoted to the laundry, and as much time as possible is given to the study of the proper combination and serving of foods, together with their varying cost and food value.

Throughout the entire course the thought is emphasized that the home is the centre of strength, and that a thorough knowledge of how to care for it in the best and simplest way should be part of the life equipment of every girl.

The training in sanitation is continuous throughout the course, and during the last half year lessons are given on the simplest aids to the injured and on the care of the sick. Believing that in these grades the time for science as science has not yet come, the emphasis is laid upon the practical side, especially upon the skilful manipulation and right use of tools, the desirability of serving a few things perfectly cooked. Yet we aim to give sufficient knowledge of the elements of which foods are composed, the effect of heat upon these, their value in the body and why they should be combined in certain proportions, so that each girl may go from school able to prepare and serve simple, well combined meals in her own home.

(2) CINCINNATI, OHIO.

The Commission was favorably impressed by the extent and quality of the educational work in Cincinnati. Some of the chief features of the Elementary Schools which have direct relation to preparation for occupations and for Industrial and Technical Instruction are described.

"No other school system in the nation, within the last decade, has been subjected to so many vicissitudes because of legislation, as has the school system of our city," remarks Superintendent Dyer in his Annual Report on Education in Cincinnati. He commends the progressive and liberal spirit of the Board since they have been responsible for the tax levy, which in 1910 was 8.5 mills.

ENGLISH.

The Schoolmasters' Club has rendered great assistance in studying conditions in the teaching of English. The composition work of all the Fifth Grade classes in the city has been examined, and the committee that investigated made an extended report. Their suggestions are epitomized in the following series of propositions upon constructive work in English.

To compose is to put one's thoughts together with a definite end in view; to so group and interrelate them as to make them available for orderly use.

Composition is essentially a thinking exercise.

Teaching information that is to be used as a basis for composition work is not composition. It is Geography, History, Literature or something else.

The material to be composed must be familiar to the child before composing can begin. The composition work proper then should be the reorganization of that material for the solution of a genuinely new and interesting problem.

To give reality and immediacy to the work in composition, and to make it socially serviceable, we should continue to keep in view that it is, in most cases, to be undertaken with the idea of being used in helpful and entertaining ways in the class or in the school or elsewhere.

Merely reproducing a story or any piece of information from memory contains the minimum of genuine composing.

The problem selected for Composition should be of such a character as to furnish a strong motive for the best form in the first draft. The practice of copying corrected compositions encourages careless work in the originals and overemphasizes the mechanical points involved in copying.

The ideal in the finished composition should be, to have both the thought and the form childlike and natural. The imposing of adult standards of expression and mechanics hinders the necessary freedom and spontaneity.

ART.

The art work is under the direction of a Supervisor and eight assistants. Each goes to a series of schools, conducts the classes, and instructs the grade teachers how to continue the work. In the two lower grades the special teachers

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gave little class instruction, but regular meetings of the teachers of these grades were held at eight different centres, thus making sixteen meetings per month. Each centre was in charge of a special teacher, who made a brief exposition of the month's work. Emphasis in the primary grades has been placed on illustrative Drawing, and in the upper grades on design and object Drawing. In the High Schools, courses of craft work have been introduced giving practice in design, both constructive and applied, and affording pupils a choice between academic and industrial work. The most popular work with teachers and pupils is nature representation in colour. This work is interesting from the standpoint of structure as well as of colour. While it is not the function of the art teacher to teach Nature Study as such, the lessons on nature representation incidentally open the way into the delightful mysteries of Nature to the children, especially in downtown districts, and they become familiar with the names, characteristics and beauties of plant life. An exhibit of more than two hundred charts, displaying the work of all grades, was sent to the National Convention of Art Supervisors at St. Louis, where it was given a prominent place. On its return, it was placed on exhibition at the Public Library. The Librarian reports that exhibits of this kind attract more attention from the public than any other, and that he believes them to be a source of education for the masses. There is increased interest in school room decoration, and local dealers are responding to the demand for a better class of pictures for that purpose. More suitable pictures can now be found in a single stock-room than could have been found in all the stores of the city collectively.

The Supervisor is frequently called to address clubs in the community upon art education. The Schoolmasters' Club gave an entire session to the subject, and made the following interesting deliverance showing the close relation of Art to school buildings, furnishings and education.

Old school buildings generally are ugly and box-like, violating both architectural and educational laws; remodelled buildings much improved in both respects; in new ones the lines are symmetrical, harmonious and beautiful, and there is special adaptation to the purposes of education.

In interiors the tinting in old buildings is the same in all rooms, and often trying to the eyes, while in new and remodelled buildings the effort is made to aid the sight in dark rooms and relieve eye-strain in bright ones. Recent removal of the blackboards from rear of rooms and from between windows gives larger areas for decorative treatment and pictures.

In all the city schools the disposition is to let the Department of Art or other competent authority dictate the colour scheme for walls and ceilings. This has secured harmonious effects and beautiful tinting.

Art objects have been purchased by various local organizations and by the schools through entertainments, to the extent of several thousand dollars yearly, in the effort to beautify school rooms, auditoriums and corridors. Colour, story or action, or a combination of these, suitable to the needs and desires of children, is embodied in pictures for lower grades; ethical classical or historical subjects in artistic representation for higher grades.

Landscape gardening has been done at three schools, window gardening at few schools, and a fine school garden at one, but little artistic treatment thus far at most, as the land are too small.

The Club suggests the treatment of rooms and corridors in accordance with a general plan of decoration and treatment; the selection and arrangement of decorative effects and the purchase of art objects by a competent person or committee in conjunction with teacher or principal; school and home gardens should

be officially encouraged, seeds and bulbs furnished at cost or, if necessary, free, and the effect on the neighbourhood and pupils observed; the enlargement of school lots to permit beautifying of part of the grounds and the gardening of part is recommended. While local effort for securing works of art is a proper and commendable function for mothers', civic and students' organizations, the Club believes that the time is approaching when such work will and should be considered the duty of school boards.

The Women's Club has employed a Supervisor of Gardening, who visits schools and gives illustrated lectures, procures and distributes seeds, and oversees the work at home and school.

Art in its relation to industry and commerce is well set out as follows:—

The educational, ethical and social aim must be consciously kept in view in all cases where art is used in or about schools, so that pupils leaving school after eight or twelve years' attendance may have taste and appreciation for good art in its various expressions. Everything about the school should be selected and arranged with an eye to its beauty as well as its utility. Beauty is utility, and is coming to be recognized in American life and industry. To create ideals of beauty for industrial uses is one aim in giving the pupils beautiful environment, artistic objects, and encouraging self expression in art work. The great problem in the industry of nations has come to be the esthetic one—how to give attractive and tasteful forms to productions so as to gain and hold the markets of the world.

At the beginning of 1909 a Normal Art Department was arranged between the Art School and the Board of Education, a course of one year in Normal Art being designed for students who were already expert in Art. All who took the course secured positions as Art teachers, most of them in near-by suburban towns. The course is maintained by the Board of Education as a department of the College for Teachers. It is taught by an expert teacher in the Drawing Department, under the guidance of the Supervisor of Art and the Dean of College for Teachers, but there is the closest affiliation possible with the Art School of the city, and the teacher conducting the work must be approved by that school. The course will be extended to two years. A pre-requisite for entrance is High School graduation and three years' special work at the Art School.

The Art Museum of the city is becoming a prominent factor in assisting the teachers in the esthetic education of the children by organized visits, lectures, collections of illustrative prints, etc.

KINDERGARTENS.

The Kindergarten Training School is closely affiliated with the University of Cincinnati, and five of the recent appointees are graduates of both institutions. The students serve an apprenticeship for 6 months as cadets in one of the schools, and are then appointed in order of rank as determined in practice and by examination. The Kindergartners visit the homes of the children, supplying clothing when necessary; 1838 hours were devoted to visiting over 6000 homes in one year. A Kindergarten farm, rented by the Mothers' Club, was equipped by the Board of Education for playground purposes, and on each pleasant day in May and June two Kindergartens were taken out there, many mothers also going. In addition, almost every Kindergarten has some kind of a garden, and many excursions are made to parks, to the zoo, and to suburbs.

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MANUAL TRAINING.

The course in shop work extends from the sixth grade of elementary to and through High School. It is also given in all grades in the retarded and other special classes and schools, and to fourth and fifth grade children in a few places where these children are unusually mature. In the eighth grade many useful pieces of furniture for school or home are made, such as hat-racks, bulletin boards, tables, plant boxes, library chairs, book racks, sewing cabinets, hall seats and stereopticon stands.

DOMESTIC ART.

Sewing is given in the sixth and seventh grades. Cooking in the eighth, and the same provisions for domestic work are made in special schools as for Manual Training. The Domestic Science work parallels the shop work throughout the elementary grades. In the High School the domestic art work continues throughout the course. As the pupils enter the High School with a knowledge of the stitches and their application, there is only a short review of handwork given. The main work of the first year is the use of the machine, taking of measurements and drafting of patterns, and the making of garments according to the drafted pattern. During the year, the students make a four-piece suit of underwear, a simple shirtwaist suit of wash material and a more elaborate skirt or waist, or both. These garments are made by machine, but a certain amount of handwork is required on them, and most of the final dresses are embroidered by hand. The second year's work includes a fall and spring term of millinery and a winter term of dressmaking. In the millinery work the students are taught the principles of the work, such as making of bandeaux, making of frames according to measurement and from sketches, making and covering of wire and buckram frames according to measurement, making of folds, facing bows, and trimming. This includes study of design, fitness of material and colour scheme. The winter period is devoted to dressmaking of woollen materials and the making of a cloth skirt and a waist of wool or silk or a whole dress. The spring term is devoted to the making of an elaborate thin dress.

In the first year patterns are drafted by the students for two reasons: First, that the students may have a knowledge of the principles upon which the patterns are drafted and thus be able to handle patterns intelligently; and secondly, because the bought patterns rarely fit the growing girl. In the second year bought patterns are used so that the student may have experience in fitting the pattern to the particular needs of the person. During both years much attention to, and instruction concerning, fabrics is given. The fitness, durability, style and cost of material are considered, and each student keeps a record of the materials used, cost of each, and total cost of each article made. The first year, eight periods a week are given to the construction work and one period to Drawing; the second year, ten periods a week, one of which is devoted to Drawing and Design.

EXTENSION WORK OF SCHOOLS.

Under this head are here included those activities conducted outside of the conventional school hours under the direction of the Board—vacation schools, summer academic school, evening schools, playgrounds, and continuation (day) school.

The pupils of each of these schools are classified upon the basis of age into advanced, primary and kindergarten. The advanced classes are conducted on the departmental plan, classes changing every forty-five minutes. The nature of the work was as follows:

For Boys.—Bent iron, wood-sloyd, basketry, raffia weaving, drawing, water-colour work, clay modelling, cardboard, nature study, stories, songs and games, gymnasium and baths.

For Girls.—Sewing, millinery, cooking, basketry, raffia weaving, drawing, water-colour work, clay modelling, cardboard, nature study, stories, songs and games, gymnasium and baths. The millinery department, a new feature, was so pronounced a success that it will always be one of the attractive features of the vacation school curriculum. Paper flower making and beadwork were introduced into one or two of the schools by way of experiment, and both were found worth while. Cooking, notwithstanding the warm weather, was one of the attractions for the girls.

Primary Department.—Much of the work mentioned above was carried on in this department of course adapted to the little fingers that were to perform it. These little folks had their songs, their storytime and their playtime, and were as busy and as happy as could be.

Kindergarten.—In this department regular kindergarten work was carried on, carefully planned, of course, for a six weeks' course. The children of this department were given as much of the outdoor life as possible, excursions to the parks near the several schools being made two or three times a week.

All the children were given occasional dips into the outdoor life under the guidance of the games teachers, being taken by them to the parks for their games.

It was discovered very early in the term that, while all the children loved their play under the direction of the enthusiastic teachers, a number of them wished to do handicraft work as well. There was no possibility of responding to the wishes of the boys along these lines, but sewing and crocheting classes were organized for the girls, and once formed, they continued through the summer. One young blind girl took great pains in initiating some of the girls into the mysteries of raffia-work, and presently she had quite a flourishing class. There were story classes for both boys and girls, and occasional lantern lectures.

The Kindergarten was a most interesting feature of the work of the playground, and it was well patronized. All summer this class of little people held its own as to numbers, and without doubt many housebound mothers took comfort in the thought that their little folks were free from the dangers of the streets, because of this safe and beautiful place. These Kindergartens had their playtime at a regular hour each morning, and then the sandboxes, slides, seesaws, rings and swings proved quite as fascinating as the lovely games indoors.

In addition to the playgrounds, each of the four vacation schools gave attention to the games and play, each school having two teachers for this purpose.

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EVENING SCHOOLS.

The total enrolment in 1909 was 4,418, 1,775 of whom were females, the total cost to the Board being \$25,757.

The industrial branches offered consist of sewing, dressmaking, millinery, art needlework, and cooking; cabinet making, carpentry, wood-turning, pattern-making, mechanical and architectural drawing, forging, machine shop practice, etc. In the new schools gymnasium and music classes are also held. Approximately one-half of the student's time is taken up with mechanical drawing and academic instruction incidental to his trade, and vitally essential to the first-class artisan.

It is found that a continuous course, arranged in an orderly sequence of topics or principles, and running for at least two years, holds students better and is altogether more profitable than short, take-what-you-please courses. The commercial students were for a time fluctuating and irregular, but when a full-two-year course of hard work was arranged they became serious in their work, faithful in attendance, and their number in a year or two increased four-fold—to 800. It was the same in the academic Night High School, when a systematic four-year course leading to an accredited diploma was established; instead of proving a death-blow, as some feared, it was a new birth, and the High Schools since have grown not only in the confidence and respect of higher institutions, but many-fold in numbers and character of work done. The number of graduates last May from Evening High Schools was 109—83 from the academic four-year course, and 116 from the commercial two-year course.

Instruction in shop work is largely individual in order that it may be supplemental to the pupil's regular shop work, and not a repetition. For example: A pupil would be given instruction in his chosen trade, but it would be applied to the making of machines or parts of machines other than those with which he comes in contact every day in order to broaden his view.

Pattern Making.—This course is intended for pattern makers and pattern maker apprentices. Applicants should be at least 16 years of age, and should have had at least one year's experience in a pattern shop. Every effort is made by means of special problems to make the work as practical as possible to each individual pupil.

Forging is offered for blacksmiths and blacksmiths' helpers, who may be anxious to get a variety of work not offered in daily practice, supplemented by lantern slide lectures and talks on the mining and making of iron and steel, transportation and reduction of ores, mining and transportation of coal, and the making of coke.

A *Special Course* is offered to machinist apprentices who now attend the Continuation School, not to make blacksmiths, but to learn to forge and temper lathe tools, planer tools, and cold chisels, and so gain a better knowledge

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of the properties of steel under heat and temper. This course is also supplemented by lantern slide lectures. The shop is equipped with the latest type of forges and power tools, and also with a sufficient supply of hand tools needed for the work.

The courses consists of demonstrations and talks on building of fires, characteristics of good forging coal and coke, sulphur in coal and its effect on steel, the use of various kinds of flux, followed by practical work at the forge consisting of forming, bending, upsetting, welding, the use of jigs and templates for duplicate work, and the making of various useful articles, case-hardening iron and soft steel by the various processes; also a study of the various tempers by the use of colours and shades, using water, oil, and various chemicals in hardening and tempering; the forging and tempering of machinists', blacksmiths' and other special tools, including taps, dies, reamers, milling cutters, etc.

Architectural Drawing.—For carpenters and apprentices and those who wish to fit themselves for work in architects' offices. This course consists of a study of house framing and construction and the drawing of plans, elevations and details of wooden frame and brick houses.

Machine Shop Practice.—The newly equipped shop with the most modern type of Cincinnati-made tools, offers to machinists and apprentices an opportunity to become all-round workmen, to get away from being mere machine tenders and to become expert on a variety of work and machines. A few months spent in this shop would be an education to any machinist, merely to study the various types of tools assembled in one room. It is the most complete and the only collection of all kinds of Cincinnati machines in the country. The course consists of work on the planer, shaper, milling machine, cutter, grinder, and various types of lathes. Opportunity for fine vise work is offered, and illustrated lectures and talks on the work done in various parts of the world.

SECTION 5 : PHYSICAL CULTURE AND HYGIENE.

In Germany, Denmark and Switzerland very ample provision in the way of gymnasium accommodation and equipment is provided for all grades of schools. In the larger towns Elementary Schools are frequently, if not quite generally, provided with gymnasiums such as one would not find in any except the High Schools or Colleges of our largest cities.

In Denmark at a Central Rural School one half the ground floor space of the building was allotted to the gymnasium. This indicates that the physical exercises and physical culture of the gymnasium are used there to supplement the ordinary exercises which are found in abundance among the young people of Denmark, who lead very active and industrious lives. The great attention paid to these in the schools is doubtless due to the influence of the many citizens who have passed through the People's High Schools. In them Singing and Physical Culture have a recognized place of great value. One mature woman

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said, on the occasion of our visit, that her course at the People's High School had given a meaning to her whole life. When asked what subjects, course or courses had done most good she said "History, Singing and Physical Culture." She was representative of a large class of Danish women whose intelligence, housekeeping ability and general culture are worthy of all admiration and praise.

PHYSICAL CULTURE.

The Swedish system of drill is generally followed. A very brief description of its essential features, appropriate for this reference, is taken from pages 157-8 of "*Education and the Larger Life*." By C. Hanford Henderson.*

The method of this gymnastic is very simple. It uses very little apparatus, and may even be carried on without any whatever. All it requires is a large open floor or a hard dirt court. Bars and ladders and wooden horses are used where available, but they are not essential. The system is primarily a scheme for general bodily exercise prompted by individual will power. It seeks to cultivate the will through the greater control of the body. It is, indeed, a system of carefully thought-out organic education. Like all true sense culture, it belongs more properly under the head of mental culture than under the head of what is commonly meant by physical culture. Notice some of its fundamental principles. It dispenses with music, because the rhythm then becomes the guiding factor in place of the human will. It dispenses with all action on the part of the instructor during the class movement, for this would substitute imitation for the directing power of the will. Both of these provisions are very subtle, and they do accomplish their purpose. The movement is explained and illustrated by the instructor, and each child knows perfectly what is to be done. But he must do it himself, of his own volition, and quite unaided by music or model. All commands are short and clear, so that they may reach the intelligence with the utmost directness and speed. The response must be equally quick and direct. The first command—"Attention!" asks that the faculties be alert and ready to act, and the body in a suitable position of vantage. The second command names the part of the body to be called into action. The third command tells the direction of motion. The last command describes the motion and calls for it. Thus: "Attention—right leg—upward—bend!" Each word is spoken quickly and distinctly. The exercise is not only meant to develop the body through the muscular exertion required, but still more to develop the power of command. The exercises are all light, and the majority of them would scarcely bring fatigue if persisted in for considerable periods of time. But where the system is well carried out, and the commands follow one another in fairly rapid succession, mental fatigue comes before muscular fatigue, and indicates very positively where the work is being done. The whole purpose of the Swedish drill is to increase the health of the body, to make it alert, quick, usable; above all, to put it under the absolute control of the will.

WORK AND PLAY.

Purposive exercises make the courses in Physical Culture attractive, and when young people participate in them they are often thereby led to take up courses in other studies and work. The physical exercises of work have perhaps the highest value, especially when they are called forth in response to definite purposes and achieve something desired by the worker. The purposive factors in work and play put them on a higher plane of service for development than exercises followed with the best of apparatus, but without conscious meaning or purpose in the mind of the pupil.

WHAT IS DONE AT EDINBURGH.

The Board has appointed a Superintendent who gives his whole time to the supervision and inspection of the work of Physical Training, including

* Published by Houghton Mifflin Company.

swimming and games, in all the day and evening schools of the Board. In many Elementary Schools the teaching of Physical Exercises is severely handicapped through want of space.

In all the schools attention is given to Organised Games. A large number of the teachers devote part of their spare time in the evenings and on Saturdays to the superintendence of these games. Associated with the Board's Standing Committee on Games, which has supervision of the games, recreations, and athletic sports taken part in by the scholars, there is an Advisory Committee of Teachers and Officials, whose duty it is to make recommendations to the Games Committee. Each game is managed by a Committee of Teachers representing the schools taking part in the game, and these Committees are responsible to the Advisory Committee.

All this is typical of the best that is being done in other progressive cities, where also notable headway is being made, in education for vocational and social efficiency.

THE TEACHING OF HYGIENE.

A most excellent paper on "The Teaching of Hygiene in the Public Schools" was read by Miss Edith Hurlbatt, M.A., Head of the Royal Victoria College, Montreal, before the Public School Society, at the National Convention, Montreal, February 23, 1912. It embodies aspects of the question which were impressed upon the Commission by visits to many schools and conversations with many leading educators. The following brief extracts are selected as expressing what the Commission heartily endorses.

Hygiene is a late comer into the company of subjects that have to be dealt with in the primary school. But it may be assumed now that on this continent it is recognized that hygiene has a place among the subjects to be dealt with in the school course.

The scope of the idea of sanitation has been greatly enlarged; it is not only the school offices, etc., the provision of drinking water, the provision of washing appliances and the adequate ventilation of the teaching rooms which are now looked at from the point of view of sanitation, but also the lighting, the arrangements for the hanging hats and cloaks and for the drying of clothes (so that the children may "change their feet," as the Scotch say), the design for seats and desks and facilities for physical exercise.

The provision of space for exercise is now being insisted upon by progressive educational authorities—for example, the English Board of Education is withholding grants in aid of buildings which make no adequate provision for this purpose.

THE HEALTH PROBLEM.

But the health problem must be recognized as a school problem not merely because of the large or small proportion of sickly and ill-developed children who find their way into schools, but because school life exposes children to an accumulation of conditions unfavourable to their healthy and normal development, calculated to affect injuriously their future social power. These children are now to be given instruction in hygiene and physical education, and a place is being claimed for these subjects in the regular curriculum of the school.

There are three factors which have hastened the movement for placing hygiene in the school curriculum. The public and especially medical opinion, having been aroused on the subject of physical deterioration, and having been discouraged by the apparent indifference of parents and educational authorities to the need of enlightening ignorance which now leads to the perpetuation of preventable defects and diseases, has at times pressed for the direct teaching of hygiene with an emphasis upon its pathological aspect rather than upon the laws of healthy living.

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A second factor has been the influence of supporters of the temperance movement with their plea that throughout the child's school life a constant stress should be laid upon the evil effects of the use of narcotics and stimulants.

The third factor has been the desire of many—overwhelmed by the gravity of the problem of infant mortality—that the public schools should be the direct educational agencies for making girls aware of their future duties as mothers, should instruct them in the care of infants and in those things which go to home making. "Of what avail," say they, "are the schools if the girls do not carry away the knowledge that will help them in their daily life and upon which the happiness and welfare of their families will depend?"

* * * * *

KNOWLEDGE FOR GOOD HABITS.

The aim of the teaching of personal school hygiene should be to give knowledge upon which to build up good habits and high ideals in respect to physical and moral life—not the perverse method of describing and explaining disease, however fully accompanied with plentiful warnings. Educational opinion tends toward the belief that the laws of healthy living are better taught during the earlier periods of school life, through actual practice and by the agency of nature study or elementary science; and that direct teaching should be confined to the latest years, the ground having long been prepared by continued and well-diversified indirect instruction. Indeed, according to this view, very little direct teaching would begin in the public schools owing to the early age at which pupils leave, though in the high school, in which the pupil remains during adolescence, the instruction can be more normal and direct, though still preferably correlated with biology and with domestic science. In secondary schools the teaching given in elementary biology as well as in chemistry and in physics affords even greater opportunities for laying a foundation upon which to build concurrent or subsequently permanent and practical interest in hygiene. "But the mere formal treatment of hygiene should never take the place entirely of the unforced effective application of any line of thought or interest to practical human living; for only by the latter means can hygiene be made one of the great humanistic studies. The teacher with inspiring personality, keen insight, sound judgment, unselfish devotion to the interest of the child, will be able to utilize the teaching of hygiene not only for the pupil's self-protection, but as a means of broadening the intellectual horizon, for deepening the sense of social responsibility, and for the raising and strengthening of ethical ideals." Hence the question of equipping the teacher with the right knowledge and the way of using it has to be met.

TRAINING FOR TEACHERS.

In 1908 the International Congress on School Hygiene passed the following resolution: "Whereas the improvement in health of, and the hygienic conditions surrounding, school children depend largely upon the intelligent cooperation, the competency, the interest and faithfulness of teachers and principals in matters of hygienic importance, therefore be it resolved that all schools having courses for the training of teachers should give instruction in (a) personal and school hygiene and (b) the principles and practice of physical training (and to each of these subjects should be given as much time as to the major subjects in the course), and that the principles and practice of hygiene should form a regular part of the curriculum of all institutes in which students are trained to become teachers in schools of all grades."

* * * * *

It is understood, from early announcements, to be the intention of the executive committee of the Strathcona Trust, which is made up of representatives of the Department of Militia and Defence and representatives of the educational authorities of the various provinces, to recommend the introduction into the schools of the system of school drills now in use in England. There it has been already recognized, to quote the English Board of Education, that "a system of physical exercise should aim not merely at improving the physique of the scholars; it should tend in addition to develop qualities of alertness, decision, concentration, and should promote the complete coördination of the movements of the body under the control of the mind." The latter aim, it is pointed out, has an intimate connection with the rest of the school work, and in so far as a course carries out that aim it is educational in the best sense."

CHAPTER II: SECONDARY AND HIGHER EDUCATION IN RELATION TO INDUSTRIAL TRAINING AND TECHNICAL EDUCATION.

SECTION 1: SECONDARY SCHOOLS.

A common criticism levelled against Secondary Education in Canada has been that the Secondary School has tended to give the youths a distaste for manual labour, and has dulled any inclination towards skilled handwork from want of opportunity to develop ability in that direction; also that it has been organized and conducted chiefly to prepare for the Colleges and learned professions, and does not give good preparatory training for the life and occupations of those who have to leave school at about 16 or 18 years of age.

Another criticism has arisen from the fact that the kind of education offered in the Secondary Schools of Canada has not been such as to appeal to the large number of boys and girls who are rather slow, or have little ability or interest, in exclusively book or theoretical studies or subjects, but who have intellectual interest and power in productive and constructive work. Experience has indicated that many youths, who are negligent, uninterested and unsuccessful in book studies and purely theoretical subjects, are attentive, diligent, interested and successful in construction and expression work calling for skill of hand, closeness of observation, exercise of judgment, initiative and co-operation with their fellows.

FAULTY METHODS OF INSTRUCTION.

The opinion has been expressed by members of the Faculties of Technical Colleges that the Secondary Schools have not given the students the right sort of preparation in the sciences and have not qualified them adequately in knowledge of materials and the use of tools and instruments, to enter upon the College courses without waste of time. The faulty method has had an eye chiefly to the imparting of information as recorded in books, and to the use of books as the chief means of education. When new science subjects were introduced in the course of study of Secondary and Elementary Schools these usually came as the result of standards of examination from the University or College. The method of presenting a subject to students of 18 years and over at the University or College had been by adopting a logical intellectual treatment appropriate to mature minds in acquiring a new subject. The more recent laboratory methods of teaching have begun to prevail in Secondary Schools and to remove the reproach. In this connection the method of teaching science outlined hereafter by Dr. C. J. Lynde is commended.

There have been statements also to the effect that the training in the use of language had not given the students ability to express themselves clearly, correctly and adequately on the actual work they were doing or to express their opinion or judgment on their experiences or observations.

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LITTLE PROVISION FOR HAND WORKERS.

Secondary Education in Canada has been almost entirely of a sort which occupies the whole time of those receiving it. In other countries Secondary or Supplementary Education is carried on while the young people are actively engaged in gainful occupations and following employment or learning a trade which will serve them in mature years. For example, in the Co-operative Industrial Schools of the United States, young men from 15 years of age upward attend High School and workshops, where they are employed, week about. In the Continuation Schools of Germany the young people engaged in gainful occupations attend Continuation Schools from four to ten hours per week. In several states in Germany the attendance at the school must be over before seven o'clock in the evening. Frequently the employers arrange to let the young workers free to attend the school in the morning or during the forenoon when they are fresh and most able to profit by the opportunities they have.

At present in Canada there is scarcely any provision for Supplementary Education for those who have left school at about 14 to go to work and who desire later to resume continuous attendance at a school which will help them in their occupations. In Germany, particularly, there are many Secondary Technical Schools to which such workers can go for courses of from one to three years. These provide Secondary Technical Education for suitable young men seeking qualification as foremen or superintendents and for the directive positions of the minor sort. Those who are to fill the highest positions as superintendents and directors are often those who have been able to take advantage of the highest technical institutions which in Germany are known as Technical High Schools. They do not correspond with the Technical High Schools in Canada or the United States but are on a level with, or higher than, the faculties of applied science of our Colleges and Universities.

(1) METHODS OF TEACHING SCIENCE.

The laboratory method, especially where there is not an elaborately appointed laboratory, has been found in every respect better than the lecture or book method of instruction alone. The sequence in which the several experiences of the educational steps follow each other for young children looks good also among young men and women at least until 17 or 18 years of age. The following steps which are not separable from each other indicate an order of sequence which is suggestive:—

Observing carefully and closely and using impressions from all the avenues of intake, together with instruction received and previous knowledge possessed, to form new ideas or concepts; reflecting on such ideas and planning towards some act or series of acts for the expression of these ideas; giving expression to them in language, drawing, calculations, actions or material products; reasoning to conclusions from any general principle deduced and applying it to other cases.

A valuable memorandum was submitted to the Commission by Dr. C. J. Lynde, Professor of Physics, Macdonald College, Que., on the teaching of the sciences of Physics and Chemistry in the Elementary and High Schools of Canada. The principles and methods which it sets forth are commended particularly to all authorities responsible for the courses in science in Secondary Schools. The following is the memorandum:—

SUGGESTIONS REGARDING THE TEACHING OF PHYSICS AND CHEMISTRY IN THE ELEMENTARY AND HIGH SCHOOLS OF CANADA.

Two methods of teaching the sciences.—In teaching the sciences to beginning students, the instructor may follow one of two courses:

- (1) He may treat the subject logically from the standpoint of the science, or,
- (2) He may treat it logically from the standpoint of the development of the child.

In teaching botany, for example, one method is to start with the simple cell and develop the subject from that; the other is to take the children out into the fields, gardens and orchards, draw out their knowledge of the familiar grasses, weeds, roots, tubers, trees, fruit, etc., and develop the subject from the knowledge they already possess. This latter method seems to be the rational one.

Elementary science teaching in Canada.—Judging from the text books in use, the elementary science teaching in Canada is of the former kind. The subject is developed logically from the standpoint of the science, but no consideration is shown for the child. In the majority of cases no attempt is made to lead from the known to the unknown; to use the knowledge the child possesses as a basis for an advance into a wider field.

The order in which the subject matter is presented is the same as that used in the universities in training scientists. The text books used are university text books simplified; the subject matter is simpler, but the order in which it is presented is the same.

The laboratory courses are university laboratory courses made down; the child is asked to make the same experiments a university student is asked to make, only the apparatus is cheaper and therefore gives poorer results.

The reason.—The reason for this state of affairs is that the sciences were first taught in colleges and universities, and the text books were written for college and university students. When the sciences were later taught in elementary and high schools, the text books and laboratory manuals prepared were copied from those used in colleges and universities.

The result is that the books at present in use are not suited to the needs of young students. They aim at the logical development of the subject matter, whereas they should aim at the logical development of the powers of the student.

WHY ?

Why do we wish boys and girls to study the sciences?—In order to answer the question, "How should the sciences be taught to beginners?" we should first answer the question, "Why do we wish boys and girls to study the sciences?"

The answer to the question "Why do we wish boys and girls to study the sciences?" is somewhat as follows.—The human race, in its long struggle upwards from savagery, has acquired a vast fund of knowledge of nature; this knowledge is a treasure to the race; it has been classified and made exact, and laws have been discovered which tell us how the forces in nature will act under given conditions.

We wish boys and girls to study the sciences, because we wish them to acquire the most essential parts of this knowledge without the long struggle, and because we wish to give them, through this knowledge, the power,—

- (1) To understand and control the forces of nature for their own benefit and the benefit of others;
- (2) To find new ways in which these forces may be made to serve mankind;
- (3) Possibly to discover new forces in nature or new manifestations of the forces already known.

In a word, we wish to make them, as far as possible, masters of their environment, through knowledge of that environment.

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HOW ?

Before answering the question "How should the sciences be taught to beginners?" we should distinguish between the meanings of the two words, *information* and *knowledge*. Information is that which we have been told, and knowledge is that which we have learned by experience.

In planning how to teach the sciences to beginners we should remember four things:

- (1) That our object is to have the child obtain power through *knowledge*.
- (2) That all teaching should begin with the known and lead to the unknown.
- (3) That the child has an intense interest in natural phenomena, and is eager to understand them.
- (4) That the child comes to a beginning class in any science with a large knowledge of nature which he has been acquiring ever since he was born. This knowledge is more or less unsystematized and inexact.

The answer to the question, "How should we teach the sciences to beginners?" is somewhat as follows:—

- (1) We should begin with those things in nature in which the child is *interested* and of which he has firsthand *knowledge*.
- (2) This knowledge should be organized, extended, and made exact; the approach to the laws of nature should be made through this knowledge; and when the law is understood the child should be led to see that it helps him to group together and understand certain phenomena with which he is familiar, and then to group together and understand phenomena with which he is less familiar.
- (3) The work of organizing, extending and making exact the knowledge possessed by the child should be aided by experiments which the child himself makes.

PHYSICS.

When the teacher lays stress upon the logical presentation of the subject matter rather than upon the logical development of the powers of the child he is engaged in teaching Physics, whereas he should be engaged in teaching children.

In many cases no attempt is made to lead from the known to the unknown, to use what the child knows of the physical world about him as a basis for an advance into the unknown. For example; the course upon "Heat" usually consists of exercises in expansion, specific heat and latent heat, and no reference is made to the many heat appliances with which the child is familiar—the kitchen range, the hot air heating system, the hot water heating system, the steam heating system, the method of supplying the house with hot water, the steam cooker, the double boiler, the refrigerator, the ice-cream freezer, double windows, clothes, etc., etc. The child has a large fund of first-hand knowledge of heat and heat appliances which should serve as an excellent foundation for a course on heat, but, as a general rule, no use whatever is made of it.

The method of teaching the other branches of Physics is open to the same criticism.

In each branch of the subject:—

- (1) Begin with those things in which the student is interested and of which he has first-hand knowledge.
- (2) Draw out this knowledge; organize it and make it exact, and then use it as the basis for the advance into the unknown. As each new fact or physical law is understood by the student, lead him to correlate it with his first-hand knowledge.
- (3) Treat the experiments as the means and not as the end; lead the student to ask the question to which the experiment supplies the answer.

Examples.

Mechanics:—The study of Mechanics might be entered upon through the knowledge the student possesses of the tools and mechanical appliances used about the home, the farm, etc., the crowbar, wheelbarrow, pitchfork, shovel, scales, windlass, pulleys, jackscrew, etc. Draw out this knowledge, organize it and make it exact. Then take up Mechanics systematically, and as each new fact or law is brought out, lead the student to correlate it with the knowledge he has of tools and mechanical appliances.

Heat:—Similarly the study of heat might be entered upon through the knowledge the student has of the heat appliances used about the home: the kitchen range, the hot air heating system, the hot water heating system, the steam heating system, the method of supplying hot water to the home, the steam cooker, the fireless cooker, the refrigerator, the ice-cream freezer, double windows, clothes, etc.

Electricity.—The average young student is intensely interested in electricity, but has little first-hand knowledge of it; for this reason the early experiments he makes should be designed to supply this first-hand knowledge. They should be qualitative rather than quantitative. For example: allow him to take apart and put together electric cells, make permanent magnets and experiment with them; make electro magnets, examine and install the electric bell with push button; experiment with telegraph instruments; light small electric lights by means of batteries and by means of a hand-power dynamo; take apart and put together a hand-power dynamo, a small motor, and experiment with them; use two telephone receivers as telephones; examine many electrical heating and cooking devices and many motors in use; trace the wiring of a house; trace the current from a dynamo in the power house to the fixtures in the home (if possible); visit an electric light plant; street car railway power house; telephone central station, etc. Use the first-hand knowledge gained in this way as the basis for the more systematic course in electricity.

Light.—Begin with the sources of light in the house, the best arrangement of lighting fixtures in the different rooms in the home, the library, dining-room, kitchen, bedrooms, etc.

Sound.—Begin with the simpler musical instruments, the guitar, violin, piano, whistle. Then take up the study of sound systematically, and as each new fact or law is brought out, correlate it to the knowledge possessed by the student.

CHEMISTRY.

Chemistry is probably the most difficult science to teach to beginners. The present method seems to the writer to be entirely wrong, and this opinion is held by many university teachers who state that they would prefer to have their students come to them without any preliminary training in chemistry, rather than have to deal with the product at present turned out.

Instead of the present course, which is exactly the elementary course used in colleges and universities, the child might be given a course in what might be called fundamental operations.

Fundamental operations.—This course would teach the child how the things are made which he sees about him and uses every day. For example, teach him how the following are made:—bricks, lime, cement, mortar, plaster, concrete, glass, paper, metals, lumber, paint, etc.; also flour, bread, butter, cheese, syrup, sugar, vinegar, salt, pepper, leather, cotton, linen, woollens, starch, candles, soap, coal gas, etc., etc.

This should be partly a laboratory course and partly a reading course. The child should, as far as possible, *gather the raw material*, bring it into the laboratory, and *make the thing*, while reading about the method of making it.

Examples.

For example, with a simple furnace the child could gather clay, bring it into the laboratory and make a brick while reading about how bricks are made. Similarly, using the same furnace, he could gather the raw material and make lime, cement, glass and pottery. Also with the furnace he could reduce one or more of the metals from their ores.

He could go into the bush, gather different kinds of wood, finish them, and learn the qualities of different kinds of lumber.

He could gather the proper wood, and make a rough paper.

He could see an animal skinned, take a piece of the skin, gather oak or hemlock bark, make an extract of it, and tan the skin into leather, with and without the fur.

He could use the fat of the animal to make soap and candles.

He could milk a cow and make butter and cheese.

He could gather wheat and make flour, and turn the flour into bread.

He could gather oats, make meal, and turn it into porridge.

He could gather sugar beets and extract the sugar, also extract sugar from sugar cane supplied to him.

He could gather potatoes and extract the starch; wool and flax and make thread and cloth.

He could learn how to preserve meats, fruits, eggs, etc.

He could make syrup, vinegar, baking powder, coal gas, etc., etc.

This course would be intensely interesting to the child. It would touch "nature study" on one side and "manual training" and art on the other. It would be an excellent training for life, and would give the finest kind of foundation for a systematic course in chemistry.

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(2) THE TEACHING OF SCIENCE IN SECONDARY SCHOOLS IN PRUSSIA.

The teaching of science has received much attention in Germany. The official Prussian Regulations for schools for girls set forth the aims and methods as follows:—

A—GENERAL AIM.

(1) *Natural History*.—The close and thoughtful observation of nature. Elementary notions of structure and the most important physiological phenomena of animals and plants; of the mutual relations of the different living creatures and their relations to man. General laws of health.

(2) *Natural Science*.—To impart, by means of experiments, an elementary knowledge of the chief laws and processes of Physics and of Chemistry, especially of those which are most important for domestic and social life, and which help to determine the progress of civilization in these days.

B—PROGRAMME OF WORK.

Class VI. Two hours a week.—Description of simple flowering plants actually before the pupil. Explanation of the most important parts and forms of the roots, stems, leaves, flowers and fruits. Fundamental conditions of the lives of plants. Description of some important native mammals and birds, in relation to form, colour and size from specimens at hand, or illustrations if sufficiently large, together with information about their mode of life, their usefulness or their harmfulness.

Class V. Two hours a week.—To extend and supplement the work of Class VI with the addition of the study of reptiles, amphibious animals, and fishes. Fundamental principles of anatomy of human beings.

Class IV. Two hours a week.—Comparative description of the related genera and species of flowering plants from actual specimens. Biology of plants. Poisonous plants. The lower animals, particularly the useful and the harmful, as well as their enemies, with especial reference to insects and their significance in the economy of nature. The commonest minerals of everyday life according to their appearance, extraction and value.

Class III. Two hours a week.—The most important cultivated plants and their uses. Fundamental principles of the anatomy and physiology of plants. The most important facts about cryptogams and the diseases of plants. The structure and physiology of the human body, with instruction in hygiene.

Class II. Two hours a week.—The principal chemical processes, with special reference to mineralogy and geology. Physics: Heat, magnetism, electricity.

Class I. Two hours a week.—Equilibrium and motion of solid, fluid, and gaseous bodies; sound; light.

C—REMARKS ON METHOD.

In view of the wide extent of ground to be covered in these subjects, and the comparatively small amount of time that can be given to them, very great care must be exercised in making a suitable selection. The aim of the teacher must be first of all to guide the pupils to observe and to think for themselves, and carefully to avoid overburdening them with mere memory work. Experiments and direct observation are in all lessons to take the foremost place. It is desirable to enable the pupils to carry out experiments themselves. No importance is to be attached to a knowledge of botanical and zoological systems and schemes of classification. The plants and animals which are of most importance for human civilized life are to be put in the most prominent place; natural objects in the vicinity and their vital connections are first of all to be made known to the pupil. Natural objects themselves, when they can be procured, are to be preferred to illustrations. The instruction in anatomy and physiology of the human body and in hygiene, is, on the one hand, to be given without diffidence, but, on the other, with due regard to feminine sensitiveness. In Physics, a mathematical treatment of the subject is only permissible when there is a natural connection with the teaching of geometry. A special text-book for teaching natural science appears unnecessary. If one is used it must be suitable for a girls' school, short and clear, and must avoid all appearances of being a scientific treatise.

PURPOSE OF THE TEACHING.

The following explanatory paragraphs are taken from pages 280, 281 and 282 of Volume 9 (Education in Germany) of "Special Reports on Educational Subjects" compiled for the British Board of Education in 1902.

It is generally recognised by German educationists that the careful study and observation of Nature, of plant and animal life, not only afford a mental discipline of the utmost value, but are also an important aid in the formation of character. Some training, therefore, in the rudiments of Natural Science forms an indispensable part of the carefully-planned curriculum of a girls' school, care being taken that the symmetry of the curriculum is not disturbed by giving undue prominence to the subject. Natural Science in secondary schools is regarded as a single subject, and must be taught as far as possible as a connected whole, and not sub-divided into separate branches. If sub-division is necessary for the purposes of convenience, the close relations existing between the different branches must never be lost sight of.* These must be taught in connection with each other, so as to train in the pupils the faculty of observing, of describing accurately, and of drawing logical conclusions from observations and experiments.

It being distinctly understood that the Natural Sciences are to be regarded and treated as one subject, the order in which the different parts shall be taught is clearly indicated in the official Prussian programme. The parts, or groups of parts, which are most closely related to each other are taken together or in succession. For example, it is generally agreed that to begin with the study of Botany is most convenient. Specimens are easily accessible, and can not only be seen but handled by the pupils. The study of plant life naturally leads to that of animals, and from thence the transition to the rudiments of human anatomy and physiology is obvious. The laws of health are studied; then follows an introduction to elementary geology and mineralogy, while, incidentally, some knowledge of a few of the most important chemical processes is gained. The course in Physics is strictly 'outline,' and includes study of the more remarkable phenomena, and the laws of its different branches, so far as this can take place without application of mathematics.

In view of the enormously wide range of this subject, very great wisdom must be shown in the choice of what is to be presented to the child. No exhaustive treatment of any branch is aimed at; on the contrary, it is not deemed possible or desirable to gain a thorough knowledge of the principles of any one branch of science while at school. To quote Mr. Russell again: "To understand the relations existing between sciences is worth more than the extensive knowledge of any one."

In the best schools ample provision is made for teaching Natural Science. There are rooms specially built for the purpose, furnished with supplies of expensive apparatus, there are huge cupboards stored with specimens, botanical, zoological, and geological; illustrations, diagrams, charts are found in bewildering number and variety. Rows of benches, each one raised above the other, render it possible for all pupils in the class to follow every stage of the experiments performed by the teacher.

PREPARING BOYS TO STUDY ANY SCIENCE.

The course of study appointed for boys is more comprehensive than that for girls, and fewer limitations are imposed upon the teacher. Some stress is laid upon practical work, and, doubtless, far more is expected of the boys than of the girls. Speaking broadly, though the aim of teaching differs, the methods are much the same. Apart from pedagogical considerations, the teaching of Natural Science to boys has the practical end in view that they may receive such training as will enable them, when they enter the university, to study any science intelligently. But even in their case very little practical work is done in the laboratory while at school. Mr. Russell's remarks upon the comparatively small part played by laboratory work in science teaching in German Boys' Schools, and the reasons for this, are of special interest here. He says: "The presence of splendid laboratories in most German schools shows that the present method of science teaching is a reaction against earlier notions concerning the function of laboratory practice. So long as the aim was to teach the sciences *per se*, laboratory work was necessary for each individual, but with the advent of the idea that the sciences are no more to be considered independent studies than any other subject of the curriculum, and that mental development of the pupil is of more consequence than definite information upon any one subject, class instruction comes to the foreground. Laboratory work is still deemed an exercise of great

*"They are not taught as distinct sciences, but as a means of assisting the individual to a more complete realisation of his surroundings."—J. E. Russell, Ph.D., *German Higher Schools*. Longmans.

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value, but its aim is to facilitate application rather than to promote individual investigation." And again, "Laboratory work, if done at all, is introduced so that pupils may duplicate the experiment performed by the teacher, or make other demonstrations putting to practical test the knowledge just acquired. The function of laboratory practice is to make application of facts already learned, not for the purpose of presenting new truths or arriving at new deductions."¹⁰

(3) THE PRELIMINARY MATHEMATICAL TRAINING OF TECHNICAL STUDENTS.

Closely related to the teaching of science is the teaching of mathematics to those who intend to enter upon technical courses. A paper on this subject was prepared by Mr. P. Abbott, Head of the Mathematical Department at the Regent Street Polytechnic, London, for presentation to the International Congress of Mathematicians, at Cambridge in 1912. It has been published by the Office of Special Inquiries and Reports of the Board of Education. The following paragraphs are selected from it as being instructive in this connection:—

PREVIOUS TRAINING UNDER PRESENT CONDITIONS.

The majority of day students come to the Technical Institution from secondary schools, while a few come from public schools. In certain provincial colleges, where most of the students come from one or two large secondary schools in the same locality, there is a certain amount of homogeneity in the character of their work, but in general there is more variation, not only in the amount of mathematical knowledge attained, but also in the nature of their training. In a fair number of cases the previous training is satisfactory, especially where the teaching has been on modern lines, but in others the differences are so wide and the deficiencies so marked, that some preliminary course within the Institute itself is necessary before a beginning can be made with the technical course proper.

Where faults exist they consist in the main of a lack of accuracy, both in working and thinking, inability to apply knowledge to new problems, hazy notions as to fundamental principles, and a tendency to regard Mathematics as something aloof from the phenomena of every-day life. Their training has frequently been too academic in character; there has been too much stress on manipulation and too little on application. A few specific examples of criticisms which have reached the writer may be quoted:—

"Students admitted are very unequal in mathematical attainments. Arithmetic is generally satisfactory; about one-half can do algebra to quadratics, the other half know little. Perhaps 10 to 15 per cent. have done a little trigonometry."

The great fault which I always have to find is that apparently the students have never, or very rarely, been taught to think for themselves, and are greatly lacking in initiative in solving problems. Far too much reliance is placed on the use of formulae. In the majority of cases also the students have little idea of arranging their calculative work concisely, systematically and clearly.

* * * * *

CO-OPERATION OF TEACHERS.

In the preliminary training of technical students there are two factors which are essential for ultimate success. One, the co-ordination of the work in Technical Institutions with that of the evening continuation schools, has already been dealt with. The other is almost as important; it is the co-operation of the various classes of teachers who are affected. There are four such classes, elementary teachers, secondary teachers, teachers in evening continuation schools, and technical teachers, and in the opinion of the writer no completely satisfactory solution of the problems involved will be reached until co-operation between these different classes has been secured. It is most desirable that in each locality the technical

¹⁰J. E. Russell, Ph.D.: *German Higher Schools*. Longmans.

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and secondary teachers should confer on problems affecting the day technical students, while co-operation between technical teachers, evening continuation school teachers, and elementary school teachers is essential if we are to obtain a proper sequence of work for evening students, with a minimum amount of disturbance on transference from one kind of institution to another.

To provide for this co-operation, I would suggest the [formation, in each locality, of an advisory committee of studies for Mathematics, composed of representatives of the different classes of teachers concerned. If such committees can be got to work, many misunderstandings will be cleared away, and many of the difficulties in the preliminary training of technical students will be removed.

(4) NATIONAL EDUCATION ASSOCIATION.

The following are extracts from the Report of the Committee of the National Education Association on "The Place of Industries in Public Education" (1910).

The problem of secondary industrial and technical education calls fundamentally for a clear distinction between elementary and secondary education which shall take account of the significant differences of children in economic resources, and in the interests and aptitudes that appear before the end of the present period of elementary education. Such a distinction points to the end of the sixth year of school as the appropriate beginning of secondary, that is differentiated, education; it does not in any sense contemplate a six-year course as the maximum provision or requirement for any group of children.

THE SECONDARY SCHOOL FIELD.

The sub-committee was directed to examine the possibilities of technical education in the secondary school field, and to define the functions of technical high schools. This type of school (in the United States) is just now in process of development, and it is difficult to forecast just what its ultimate character is to be. We have the engineering schools of collegiate rank, but we have had until very recently no public schools which provided thorough technical training of secondary grade. There is a great variety of positions coming between the engineer on the one hand and the mechanic on the other.

The special function of the technical high school should be to train men for these positions. The engineering schools have their own functions and do not give the practical training involving the essentials of a variety of trades and industrial processes which foremen, superintendents of shops, and men of that type need. The technical high school can give this practical training, and in addition, all the scientific and literary training which is necessary for such positions. No doubt a large number of foremen and superintendents, designers and manufacturing experts will, in the future, come from the ranks of the mechanics as heretofore, but the majority of such positions are more and more requiring a broader equipment than is afforded in commercial practice.

Can industrial-arts education of intermediate grade be related to the higher technical training? Many educators feel that no system of education should be allowed to develop blind alleys, and they wish to see the way kept clear for any youth to pass from one school to the next higher. While in many cases this is an impractical demand from the standpoint of vocational education, it is by no means impossible to pass youths from intermediate industrial-arts training into the higher forms. While they lack something of the technical training, they will have gained on the side of a knowledge of practical conditions. In Germany, it is well known, a large number of the youths who take the intermediate technical training (not that of the engineering level) must have served a period of apprenticeship. Then the chosen ones from among apprentices are admitted to the middle technical schools.

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DEFINITIONS OF THREE TYPES.

From careful analysis of the existing practices in Secondary, Industrial and Technical schools, and of the needs of this field of education, as evidenced by the testimony and expressions of opinion from a great number of educators, the Committee has formulated the following definitions of three types of schools:

A. *The manual training high school, or the manual-training school*, is a school of secondary grade in which a greater or less amount of handwork is included in the curriculum and in which the greater part of the academic instruction is similar to that found in other high school and college-preparatory schools, neither the manual nor the academic instruction being specially planned to be of direct vocational service.

B. *The secondary technical school, or the technical high school*, is a school of secondary grade having the distinct purpose of preparing its pupils for industrial leadership, that is, for positions in industrial life requiring skill and technical knowledge and of greater importance and responsibility than those of the skilled mechanics. In such a school the instruction deals not only with the important manual operations, but also with those principles of science and mathematics and their direct application to industrial work that will help to prepare the student for successfully mastering the more fundamental processes and problems of those groups of industries which the school is designed to reach.

The secondary technical school, or technical high school, should have for its main object the preparation of its pupils for efficiency in a large group of important positions in industrial life. Its aim is to cultivate industrial intelligence and those qualities which are essential for efficient industrial leadership rather than abstract reasoning power.

C. *The trade school and the preparatory trade school* are schools which have for their definite purpose the preparing of boys or girls for entrance to the skilled mechanical trades, and which deal with their pupils during a briefer course and allow for earlier preparation for practical work than the technical high school. Such schools place their greatest emphasis upon practical handwork instruction under conditions resembling as closely as possible those prevailing in commercial practice. Such schools relate the academic instruction at every point closely to the practical work, and include little that is not of direct bearing on trade work.

SECTION 2: INDUSTRIAL TRAINING AND TECHNICAL EDUCATION OF COLLEGE GRADE.

The Commission found itself unable to make a complete study of Technical Education of University and College grade. It directed its enquiries in this respect almost entirely to a study of the effects of the highest forms of Technical Education upon progress in industry and trade, and did not attempt a thorough examination of the organization of the institutions or their courses of study. In France, Germany, Switzerland and the United States the power and influence of Technical Education of the highest types appeared to be greater than in the United Kingdom or in Canada. In England the opinion most frequently heard—and it was earnestly urged—was to the effect that hereafter the industries must somehow secure the services of more men of the highest scientific attainments with thorough technical training, or her manufacturers and merchants will not be able to hold their own against foreign competition.

The Faculties of Applied Science of Colleges and Universities in Canada have the reputation of preparing engineers for professional work in a thorough and satisfactory manner. From what was learned abroad the opinion appears

to prevail that students in Technical Colleges should have, at some time before they graduate, obtained experience with materials, tools, machines and products for the purpose of giving them a clear understanding of principles, and a correct knowledge of the conditions of production and construction, which prevail in shops and factories. It is not important that they should have enough practice to develop either skill or speed as workmen in manipulative labour.

(1) CO-OPERATIVE COURSES IN THE UNIVERSITY OF CINCINNATI.

A plan has been tried at the University of Cincinnati according to which some students in the Department of Engineering spend week about at the University and in the shops of the city. The plan has been in operation only since 1906, therefore practical results, as they may be discerned in the work of the students after they have graduated, have not yet been determined. So far the working of the plan has been satisfactory to the University authorities, to the employers of the students in the shops and factories, and to the members of the student body themselves.

PLAN OF INSTRUCTION.

The College of Engineering offers two sets of courses, the four-year theoretical courses, similar to those of other Engineering Colleges, and the five-year co-operative courses.

The Co-operative Courses are planned to combine and co-ordinate theory and practice. The theory is taught in the University, and the practice is obtained at the manufacturing plants of the city. Students in these courses work alternate weeks at the University and at commercial shops. The classes are divided into two sections which alternate with each other by weeks, so that when one section is at the University, the other is at the shops. The length of the course is five years, the alternation being carried on eleven months of the year. Each student has a two weeks' vacation during the summer, and a week's vacation at Christmas.

The practical work at the shop is as carefully planned as the theoretical work at the University. In Mechanical, Electrical, and Metallurgical Engineering the students follow, as nearly as possible, the path of the articles manufactured from the raw material to the finished product. In Civil Engineering the students work with structural iron companies, ferro-concrete companies, railroads, and the City Engineer's office.

The entrance requirements for these courses are precisely the same as for the regular four-year course. The theoretical work given at the University is as thorough as the work given in the regular four-year courses. It is given over a period of five years. None of the subjects of the course are abridged and none are omitted.

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PLAN OF PRACTICAL WORK.

The practical work is planned to give a thorough course, beginning with the simple labour of actually doing things and going on to and including the more complex advanced work of engineering practice. For example, a young man desiring to become a Railroad Engineer, begins work as a labourer on a track gang; he remains on this until he is competent himself to direct the work of the gang, after which he goes to the bridge-carpenter gang. Following this he is transferred to a bridge shop to learn fabrication. He then goes back to the railroad on ferro-concrete work and switch and signal work. After a short time in the motive-power departments, he finally reaches the engineering department of the railroad. In mechanical engineering, a student goes through much the same apprenticeship as the machinist, with foundry work in addition. In his later years, he also goes into the engineering department. Through a system of co-ordination by special instructors, who visit the shops weekly where the students are at work, the theoretical and practical departments are brought into close connection.

Student apprentices are paid for their work at the prevailing commercial rate paid any other person doing the same class of work. There is a minimum scale of wages, however, beginning at 10 cents per hour and increasing 1 cent per hour every six months.

SHOP WORK

In all cases the Dean of the Engineering College and the Professor of Civil, Electrical, Mechanical, Chemical, or Metallurgical Engineering, as the case may be, confer with the manufacturers in planning the course of shop work, so that the students get a logically and carefully arranged shop training. The work of the shops is co-ordinated with the work of the University by a special set of teachers called Co-ordinators.

The shop co-ordinator is a college graduate acquainted with shop practice. He spends every morning at the University and every afternoon in the shops. His function is to make a direct weekly co-ordination of the work of the shop with the theory of the University. One afternoon, for example, he may be at the shops of a local manufacturing company, where he will observe the student apprentices at work. He will know what they are turning out, their speeds, feeds and cuts, the angle of the tool, how the batch of work is ticketed, how the work is set up, the power drive, everything important in connection with the operation. The next week these young men will be grouped together with their classmates for two periods in class, when he will explain the functions of the particular articles, on which the students were working, in the machine which the local manufacturing company builds. He will take up all questions of speeds, feeds, cuts, accuracy, etc. Figuratively speaking, he will take from the student apprentices the blinders which would restrict their vision except for this explanatory work. The ticketing of the batch of work is gone into,

and the system of routing is explained. Ultimately during the course all problems of shop organization, shop accounting, cost keeping, shop planning, power transmission, heating, lighting, etc., are discussed.

In conjunction with this, a card system is employed by means of which everything the student does in the shop that exemplifies a theory taught in the University, is called in detail to the attention of the teacher of theory, so that when the student comes to that particular theory, the exemplifications which he has had in his practical work in the shop are called to his attention. It will be seen, then, that out of the student's own experience is drawn much material for his course in mechanism, thermodynamics, machine design, strength of materials, shop economics, etc.

A similar system is followed in railroad work, construction work, and in all the other co-operative fields.

Co-operative courses are given in Chemical Engineering, Civil Engineering, Electrical Engineering, Mechanical Engineering, Metallurgical Engineering.

(2) TECHNICAL HIGH SCHOOLS (TECHNICAL COLLEGES) IN GERMANY.

A fairly full report on the character of these institutions is given in the Report on Germany. As already mentioned the Hochschulen, or High Schools, correspond to the highest technical institutions in this country. Dr. Kerscheneister of Munich puts the case thus:

It will be advisable to distinguish three groups of schools, according to the grade of training to which they aspire. German industry and trade require, precisely like the German army, a number of intellectually highly-trained officers, a number of well-trained subalterns, and an army of efficient soldiers.

The group of technical officers is almost exclusively recruited from the German technical colleges. These institutions are open only to students who have passed through the 9 classes of the secondary schools. They educate the technical leaders of industry and also the state and municipal officials who are entrusted with the execution of technical problems. They receive their pupils after a school course of 12 or 13 years, including the primary and secondary school, running from the pupil's 6th to his 19th year. Frequently a year of practical work is thrown in between the secondary school and the technical college. These technical colleges supply us for the most part with the higher technical heads of factories, whose duty it is to strike out new paths and discover new tasks and methods.

Mr. Max Wurl in a Paper on "Technical Education in Germany" read before *The North-East Coast Institution of Engineers and Shipbuilders* at Newcastle-upon-Tyne,* presents the objects and nature of the Technical High Schools in this way :

The aims of the technical high schools are to train the student to independent thought in technical affairs. He is taught to take a wide view in all of his considerations and all his doings, to avoid the mistake of one-sidedness which is but too common. All points, practical, theoretical, commercial, etc., must be studied with equal care and thoroughness; a failure in any undertaking always shows that something has been overlooked or neglected, and on the other hand we may be sure of success, if we include in our considerations *all* the different conditions according to their importance.

*Minutes of Proceedings, Vol. II.

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As a preparation for this study the best obtainable general education is considered necessary; only people who have gone through the full nine years' course at a *Gymnasium*, *Realgymnasium* or *Oberrealschule* and have gained at the end the certificate of maturity by passing that well known, rather severe, *Abiturienten-Examen* are admitted as students. People without that certificate can get permission to study as *Hospitants*, but the fees are higher for them and they are not admitted to any examinations and can of course not take degrees. The newest regulations exclude *Hospitants* who are not in possession of the "one years' service certificate," i.e., have not passed that particular examination after a six years' course at a secondary school.

ORGANIZED IN SECTIONS.

Every student who wants to take degrees must have had at least one year's workshop practice before his first academical examination. This new clause was not introduced until an enquiry had been made as to the readiness of industrial establishments to accept volunteers in their works. 520 engine-works, shipyards, electrical works, ironworks, foundries, bridge building firms, etc. have now agreed, and about 1,700 places are available every year, in addition to those provided by the state for training its railway engineers. For this latter group the regulation is, that the State-Railway Engineer Students work six months in the fitting shop and two months each in the machine shops, foundry and pattern shops; they have to keep an account of their work, and being *Volontäre* receive of course no remuneration.

The object of the workshop practice is not to teach the future student any handicraft as such, but merely to make him acquainted with the materials, tools and working methods, and last, but not the least, with the workmen; the purpose is to give him an idea about the conditions, means and limits of manufacture and workmanship.

EXPLENDS ARE WISE.

Having passed all these stages of preparatory training the youth will be freely accepted at any German *Hochschule* on account of his certificates and without further examination; entrance examinations do not exist either at the universities or at the *Hochschulen*.

As a student he enjoys an almost perfect freedom; he may take his apartments and use his time as he likes; he is not even compelled to attend the lectures, and no control is exercised by examinations, etc., during the session.

This "Academical Freedom" is considered essential for the individual evolution of the mind. However dangerous it may become sometimes, nobody who has once been a German student and enjoyed the charm of that freedom would ever admit it being in any way curtailed.

This freedom exists in the teaching as well as in learning. The Professors are independent in expressing their thoughts, and only responsible to science itself. Socially they are standing directly under the Minister of Education, who appoints them and often fixes their salary with them privately. The salary consists in a fixed annual sum plus the student's class fees. Besides these ordinary Professors there are generally a number of qualified private teachers (*Privat-Dozenten*), lecturing either on the same or on special subjects; they have no fixed salary, but receive as a rule the whole tuition fees paid by their students for their lectures, or at least a part of them.

ONE YEAR OF SHOPWORK REQUIRED.

The instruction at the *Hochschule* is for the first year chiefly general in character; later on specialization into the different branches of engineering takes place. To suit the arrangement the *Hochschule* contains different sections (*Abteilungen*) and every student is entered into one of them. At Charlottenburg for instance there are six sections:—

1. Architecture.
2. Civil Engineering.
3. Mechanical Engineering.
4. Naval Architecture.
5. Chemistry and Metallurgy.
6. General Sciences.

Every student belongs for the first year to Section 6. Although free in his choice, he is recommended to follow a certain course of studies laid down in a programme for the different sections; he may also obtain advice in this direction from the *Abteilungs-Verwalter* of that section, a professor detailed for this special duty every year. The method of forming a separate section for the students of the first year, originally copied from the French *École polytechnique*, has become more and more a matter of form; and the programme of study for the first year, i.e., the subjects recommended, are no longer quite uniform for the different branches of engineering.

THREE PARALLEL METHODS.

For the training of the *Hochschulen* three parallel methods are in use; viz.: lectures, practical courses in drawing and designing, and experimental courses in laboratories.

The lectures are held in the usual way; the students make their notes while the professor is speaking and explaining. Some of the lectures are public, *i.e.*, free of charge, while the first three lectures in every subject are as a rule also free in order that students may form an opinion before entering the class. Libraries, models, art collections, etc., give every student an easy opportunity to widen and deepen the knowledge acquired in the lecture rooms; for the same purpose a number of excursions are made every year.

The instruction by lectures has to go hand in hand with the courses of drawing and designing. The latter bear at first a general character and extend, for instance, over ornamental drawing, geometrical drawing, graphical statics, etc. After these, follow more specialized designs, at first of details and later of whole constructions. The rooms provided for drawing and designing are open to the student all day from 8 a.m. to 8 p.m.; he may divide his time as it suits him, but assistance is only given at the particular hours appointed for the courses.

The training itself tends to an individual development of each student; the object is to educate him to self-dependence and self-reliance. The help of the Professor and his assistants is generally confined to suggestions and criticisms concerning the most practicable way of designing, the leading principles for the design and the application of the details; the student is supposed to learn not only what is general practice but also why it is general practice. He must even find his way if his practical experience fails, as for instance when he finds himself confronted with the task of designing an engine of which he has never seen an example in practice.

Similar principles apply to the laboratory courses, which are intended to develop the student's faculties of observation. The great value of laboratories for technical education is fully recognized and much has been done lately for their development, especially for mechanical engineering. Large and well equipped laboratories have been established in several places during the last ten or fifteen years. Formerly we had only laboratories for chemistry, physics and electricity, but at present, kindred institutions are in existence for mechanical engineering, technology, electro-chemistry, metallurgy and other subjects. This variety and specialization is further extended inside of the different laboratories so that each student may train his abilities in the direction which suits his particular taste and inclination.

SOME CONCLUSIONS.

The Commission is of opinion that:—

(1) Secondary Vocational Education should be provided for those persons who are to follow manual industrial occupations, producing occupations such as agriculture, conserving occupations such as housekeeping, and commercial and business occupations;

(2) Such persons should have opportunities for acquiring Secondary Education which would be as fully advantageous to them in their vocations as the Secondary Education provided in the general school system has been advantageous to those who enter the learned professions, other professional occupations, or the leisure class;

(3) Secondary Education for those who have gone to work should be provided in day and evening classes in close correlation with their occupations while they are still learners, as apprentices or otherwise, and also when they have become skilled workmen or journeymen or have come to fill positions as foremen, superintendents or managers;

(4) Technical Education for the preparation of Technical Engineers, and other persons being trained for professional work of a grade and rank similar to theirs, would be improved by further extensions in the directions indi-

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cated by the practice in Germany and at the University of Cincinnati. This applies particularly to the education of such men as might become principals and teachers in the Middle Technical Schools and Technical High Schools in Canada. The Commission commends the consideration of this matter to the authorities of the Technical Colleges in the belief that they alone are qualified to render a final decision in regard to it.

The Universities and Colleges are providing technical courses to meet the demands from an increasing number of students. The rapid growth and development of the country, and the further application of science and scientific methods to all forms of production, construction, conservation and administration, will call for still larger numbers of graduates. In consequence the Universities and Colleges are sure to require increased financial support. The Commission is of opinion that this should be provided from some source without causing the fees required from students to be so high as to exclude suitable young persons who may seek the highest grades of technical instruction.

CHAPTER III: MANUAL TRAINING; NATURE STUDY; SCHOOL GARDENING; HOUSEHOLD SCIENCE; VOCATIONAL EDUCATION; INDUSTRIAL TRAINING AND TECHNICAL EDUCATION.

The loose and indefinite way in which writers and speakers use names and terms, to indicate different kinds of education, frequently obscures their meaning and prevents clearness of understanding. Some names are used interchangeably, although they mean different things. One group of these names may be cited as follows:—Educational Handwork, Construction work, Hand and Eye Training, Handwork Instruction, Manual Arts, Sloyd and Manual Training.

Other groups contain such terms as Nature Study, School Gardening, Elementary Agriculture, Agricultural Education and Rural Education; Domestic Science, Household Science, Domestic Occupations, Housekeeping, Practical Arts, Domestic Economy and Home Economics; Commercial Education, etc.; Professional Education, etc.

Still another group includes: Industrial Training, Industrial Education, Technical Training, Technical Education, Technical Instruction, Industrial Arts, Practical Arts and Vocational Education.

The confusion is jumbled worse than ever when various grades of such kinds of education, as are indicated by the foregoing terms, are spoken of as Primary, Elementary, Higher Grade, Supplementary, Superior, Intermediate, Secondary, Middle, High, Higher, Highest.

One can only hope to help a little towards clearness of understanding of what is being done or what is meant by the forms of education which the terms indicate. Orderly thinking, as the first step towards well-ordered organization, is what is aimed at, rather than uniformity in the terms of classification.

SECTION 1: MANUAL TRAINING AN INCLUSIVE TERM.

The following paragraphs are offered as a contribution towards clearing up the question and bringing about a more intelligible usage by educators and others. The terms Educational Handwork, Construction Work, Hand and Eye Training, Handwork Instruction, Manual Arts, Sloyd and Manual Training are dealt with first. The term Manual Training is coming to be regarded as including all the others in this group.

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FOR DEVELOPMENT OF PUPIL'S POWERS.

All of these terms are used with reference to education whose chief aim is the development of the powers of the pupil for cultural purposes rather than for their application to any particular occupation. Such education looks towards the systematic training of the powers of the pupil into ready co-ordination for accomplishment. It helps to conserve and develop the love of constructive work. It also provides recreation through active physical work which plays, in the education of the pupil, a part somewhat similar to that of organized games and play in life. It is a means of awakening and maintaining the interest of many pupils who are not naturally interested by theoretical and abstract studies when separated from doing something with concrete things.

The forms of activity which are carried on by pupils under these various names satisfy some of the natural instincts "to do." These have been stated as: Sympathetic instincts—to talk and listen and to act in the dramatic sense; Scientific instincts—to know the "Why" of things and to construct things; Aesthetic instincts—to dance and sing and to draw, paint and model. These have also been arranged under the terms of "Communicative," "Dramatic"; "Inquisitive," "Constructive"; "Musical," and "Artistic" instincts.

In the forms of education carried on under the several names already mentioned there is similarity but not identity in the aims of the work. In all cases there is use of material or materials, such as paper, clay, plasticine, wood, cloth, leather, metals, and incidentally pastes, thread, paint, etc., and also training in the use of tools or instruments. The direct object put before the pupil is to "make something." That something may take the form of an exercise in making part of an object, such as a wooden joint, without making a complete article. Under the Sloyd system the exercise is directed to making a complete model known to the child as being useful and, so far as practicable, beautiful.

The "exercises," or "things to be done," or "things to be made," are arranged in order of difficulty according to the age and capacity of the pupils. At the same time they are arranged to give training in handling materials and tools, to impart knowledge of materials and to develop power to turn the thought or concept of the mind into a drawing and, where practicable, from the drawing into a concrete object corresponding to it in form.

AIMS AND VALUES OF MANUAL TRAINING.

It is now generally admitted that Manual Training work should have a recognized place in the course of study from the Kindergarten until about the 11th or 12th year of age, for cultural or self-realization purposes. After that the "Manual Training" (the term is used to represent all the others) might be directed more definitely towards discovering aptitudes and tastes and developing skill and ability for some occupation.

The proportion of time devoted to work involving manual activity varies a great deal. No one rule can be adopted with advantage in all schools for all classes of pupils, but the tendency is towards not less than a quarter of the time in school from the Kindergarten up to the age of 12 being devoted to some form of handwork, in correlation with the other studies and subjects.

The arguments which have been used in favour of Manual Training have some resemblance to those which are urged on behalf of Industrial Education. They both plead for a fuller recognition of motive as it appeals to the pupil in school work and a better adaptation of the course of study to the large majority of the pupils in the hope of accomplishing thereby the reduction of the numbers who leave school before the completion of the elementary courses and the development of ability for industrial life.

Manual Training, or Hand and Eye Training, has particular value in the biological function of education. It is a means of developing the sense organs and of training faculties and powers to meet the things and forces of the outer world with intelligent discriminations. Whether this results in an increase of brain power is a question elusive of proof. The evidence, however, is clear that it adds to the happiness of the pupil, causes the knowledge which he acquires to be retained and available for use, and quickens the rate of his progress in other school work.

A recent book, "Handwork Instruction for Boys,"* by Dr. Alwin Pabst, Director of the School for Training Teachers of Handwork, Leipsic, Germany, presents the case for handwork in Elementary Education with such clearness, authority and moderation that selected extracts from it are introduced here. The paragraphs as selected are not continuous in the book as they appear, but they are in the same order of sequence. The headings are inserted by the Commission.

THE REAL SIGNIFICANCE OF HANDWORK.

In reality it concerns not simply a new branch of instruction, but a deep-rooted principle of our whole education system. Therefore something further must be brought out if one is fully to comprehend handwork in its significance for education. The superficial way in which this question is frequently treated in meetings and by the Press can lead to nothing but a war of words, at the end of which neither opponent convinces the other.

Knowledge in itself is not power, but it becomes power in the service of the will and understanding.

Scarcely a phase of intellectual life reflects the national character of a people so clearly as that of education.

Examples drawn from an inexhaustible supply of material may suffice to show the origin of the first tools and their significance in the further development of civilization; at any rate they give us some idea of the truth and meaning of the assertion of Edmund Reitlinger that "the entire history of man, if examined carefully, finally reveals itself in the history of the invention of better tools."

The tool constantly serves the purpose of giving to man a greater mastery over nature and her products. Through the use of mechanical tools this mastery is remarkably increased and strengthened. Even the scientific instruments and apparatus are nothing but improved and refined tools, which are especially constructed to secure for us a more complete knowledge of the natural bodies and the powers of nature than would be possible for us with our senses alone. Just as the ordinary tools assist the hand, so the microscope and the telescope assist the eye, the telephone the ear, and the telegraph makes possible communication at great distance without change of place.

*Translated from the German by Bertha Reed Coffman, A.M.; published by the Manual Arts Press, Peoria, Illinois.

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The improved tool demands a more skilful hand, and in the same measure as the tool of the present differs from that of primitive times, the skill of our hand differs from that of the hand of the primitive man.

Nature has also provided that it should not be possible for a person to receive a wholly one-sided development for a particular service; if a particular service of the eye or hand is required from a person, the entire man must be developed to a certain power of achievement.

REFINEMENT OF THE MUSCLES.

What we call rough work calls into activity the groups of large muscles with their coarser adjustment, while the finer work exercises groups of small muscles with their more delicate adjustment. Therefore, the rougher work develops only a few of the crude motor functions, while the finer work develops the more exact motor functions and requires a finer adjustment of the movements of the muscles. This latter alone is educative, while the hardest kinds of handwork dull the motor perceptions.

If the training is started at the right time, the movements of the muscles can attain a certain stage of perfection which is not possible if begun at a later period in life.

The practical conclusion resulting from these statements of psychological research must be that instruction in handwork should not begin too late. As experience has long taught, it is joined with the play of the children before the school period and in the first school years; and in general it ought to be pursued as the chief thing in the period from the eighth to the sixteenth year. By postponing systematic school exercises for the development of the motor perceptions, the best time is lost and the result becomes thereby questionable.

To be sure we must not fall into the opposite mistake and have the finer exercises, especially those of the fingers, commence too soon. Even here a carefully graded arrangement is indispensable; the universal, methodical maxim, "From the easy to the difficult," when applied particularly to the motor exercises, would be stated: "From the larger to the finer."

And so this line of thought also leads to the statement given above, which might be the central idea of all such discussion, that the entire history of civilization finally reveals itself in the history of the invention of better tools.

HANDWORK AS INTELLECTUAL TRAINING.

It is not possible here to go into detail in these difficult questions, which are not even wholly cleared up by research; but this much is in any case certain, that systematic training and education in dexterity of the hand must be demanded even in the interest of the development of speech. Each individual movement of the hand has its effect on the brain; indeed it must be said plainly that dexterity of the hand does not have its seat in the hand at all, but in the head and brain. Consequently, hand work is without doubt a kind of intellectual training, and the hand is the sixth sense, a way which leads directly to the brain. The customary distinction between "head work" and "handwork" rests upon a fundamental error! There is no kind of handwork which does not require at the same time more or less brain work, and "the man who works energetically and artistically with his hands, as well as the philosopher, must possess a good head." Firmly rooted laziness is inseparably connected with stupidity and dullness.

Handwork arouses the initiative, sets in motion the essential activities of the mind, attention and will, and requires a correct expression of the will. Thus it is an important tool for the development of the intelligence and the permanent retention of knowledge in the brain.

First of all, the play of children is for them serious work. The child is never more industrious than when he plays, and since something definite must be accomplished in the play he learns through play how to work. But an essential difference still remains: play is voluntary, work required; and so through work we learn obedience, the most sterling virtue of children, better than in any other way.

But it is false from a pedagogical point of view to demand of the child only so-called head work, the regular learning of the school. This is, for the first school years especially, a truly bitter food which the child would not take of his own accord. On the other hand, with soul directed and selected activities for the hand, he immediately becomes unwearied in his zeal; it is a well-known experience which can be encountered daily in carefully directed courses in handwork, that one finds there scarcely any children who are not industrious, attentive, and willing.

ITS SOCIAL SIGNIFICANCE.

The social significance of instruction in handwork rests especially upon the fact that it gives opportunity for association in work, and for mutual helpfulness and advancement; such as is not permitted in any other branch of instruction. The external relationships themselves give rise to mutual consideration and helpfulness; and besides, it lies in the very nature of productive work

that it leads to association and common interest in work. The social differences are forgotten in zeal for work; each is a friend and helper of his fellow workman.

The entire system lies chiefly in developing independence in the pupils and in giving them practice in perceiving and reflecting. The more sparing of words the teacher of practical work is, the surer will he attain this end; and the more perfectly he has the technique of his work at his command, the greater will be the confidence of his pupils in him.

THE DEVELOPMENT OF THE WILL.

If psychology teaches that the will is a thought brought into execution, then the motor conceptions which excite the muscles to conscious movements are also in a certain sense the raw material out of which the ethical will is formed. Flabby muscles and a weak will can be traced back to the same causes; namely, to a lack of motor activity of the brain. All kinds of physical exercises, gymnastics, and sport, naturally arranged, contribute not simply to develop the muscles, but also to make them subject to the purposes of the will. In this matter instruction in handwork is especially effective. As has already been shown, all finer work is controlled by groups of small muscles, and this limitation also demands accurate control over all the muscles which are not even used in the movement concerned. This power of mastery and the concentration of attention, which is connected with it, form an element which is of the highest significance in the development of the ethical will.

Pestalozzi states that the development of mechanical ability, which is still necessary—in other words, the development of the physical side of artistic training—includes the training of the human senses and the limbs. Their goal is "the highest possible control of the nerves, which gives assurance and perfect control of hand and foot." Both phases of artistic training, the intellectual and the physical, must be carried on together from the cradle up, and in close relation to each other.

Other places in Herbart's works show that he recognizes in physical labour an excellent preparation for systematic activity and at the same time an important means for forming character. He says, "Many a growing boy 'finds himself' sooner at handwork or in business or in agriculture than in school."

A FOUNDATION FOR INDUSTRIAL LIFE.

Among the representatives of the Herbartian school Ziller and Ernst Barth in Leipsic have especially valued instruction in handwork. Ziller sees in it an essential broadening of the general instruction in the preparatory school, and a foundation for the later technical instruction in the trade school or workshop. Consequently instruction in handwork necessarily belongs to the training of pupils who wish to devote themselves later to a practical calling.

Barth shows how instruction in work is to be carried on in the different grades. It is united to the history of civilization and natural philosophy, to geography, geometry, and drawing. From the twelfth year on, but not until then, preparatory instruction for the training for a life work is to be offered in special classes, which is to be adapted to the local conditions and branches of industry.

Professor Biedermann, who through his inquiries into the political life of the middle of the last century, and through his comprehensive studies in the history of civilization, became convinced that there was need of a thorough reform in the German system of education, justified his demand for "education through work" by pointing out, first of all, the drawbacks and disadvantages of purely theoretical instruction. In connection with it he calls attention to the overburdening of the pupils, and especially to the injuries to the health which exist in all kinds of schools as a result of the overloading. In a later chapter, *Schule und Leben*, (School and Life), he correctly emphasizes the fact that the theoretical knowledge and acquirements gained in the school have in some respects little significance for life; moreover, that the school not infrequently weakens in the pupils the taste for domestic and practical pursuits, and accustoms them to look down with scorn from the height of their imagined wisdom upon the activities of their parents and companions. In order that the school may really be a preparatory school for life, he demands of it the following: along with knowledge and understanding, along with memory and the other powers of receptivity, it must also develop important means of independence, viz.: practical ability, the inclination for construction, keenness of eye, skill of hand, and, above all, will power; in a word, it must not only be a school for teaching and learning in the usual sense of the term, but at the same time a school for work, and must assume its task of educating the pupils for work.

Moreover, the social and economic conditions, which have entirely changed, require the introduction of these activities into the school, because the complete transformation of the entire system of production by the use of machines and the elimination of the most important productive work from the activities of the household and their removal to the factory, have caused the growing child of the present day to lose a great many educative influences, which a few centuries ago were still felt. On that account the education of the school must include these, and thus make reparation for that which is lost. This can only be done by the introduction of practical instruction in the activities of the household and in the problems of the workshop. Wherever

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the school offers this kind of instruction, not only as a new course, but as a principle which may penetrate through and embrace all instruction, it is fit for the task which it has, or ought to have, in the social life of the present.

EDUCATION FOR WORK, EDUCATION THROUGH WORK.

That these three tendencies are especially worthy of notice, no proof is needed for him who has in mind, above everything else, the practical results of our education. We are to learn, not for school but for life, and all training should tend to make the person useful for life. For this reason it is necessary to test all aims and means of education in what way they are efficient with reference to the connection between school and life, and with reference to the education of the individual for becoming a member of the social community.

Thus we see a return to the ideas of Friedrich Fröbel, who made self-activity, the development of the creative powers of the child, and joy in work, the main thought of his education. Without doubt further progress will be made along this line, and constantly new systems of instruction and more advanced methods of teaching will be undertaken by means of the application of these principles.

According to our ethical ideas, a commonwealth cannot exist without the work of the individual in the service of the whole, just as a gradual steady development of humanity is not conceivable without serious work, which is performed by the individual within the whole. The higher the culture of a people, the more is work exalted, and it is certainly not a good sign for our German civilization that in our education, training toward a respectful regard for work, especially physical work, is almost wholly lacking. People who are ashamed of handwork do not fully comprehend culture. Education which inspires respect for work and a will for work is a direct means of keeping a high standard of culture, because it compels the wealthy to share with the needy in efforts to obtain culture, and in the distribution of it; and even the commonest labourer who performs the most menial service ought to have the consciousness that he is doing it for the community as a whole and that by means of that work he is gaining for himself the place to which he is entitled within the whole. "Education for work" and "Education through work" are the two cardinal points around which social pedagogy finally turns.

The introduction of the workshop into the school is the symbol of the changed method of education, which has been developing slowly but surely. Perhaps in a not far distant future the statement will be true: "Only he is truly a teacher who teaches the secret of work."

SECTION 2: NATURE STUDY, SCHOOL GARDENING AND RURAL EDUCATION.

Another group of names or terms is made up of Nature Study, School Gardening, Elementary Agriculture, Agricultural Education and Rural Education.

Nature Study, while often involving some manual activity, is less concerned with training through activities of the body than with giving the pupils an intelligent acquaintance with the phenomena of nature. It holds about the same relation to the terms "agriculture" and "agricultural education" as construction work in the early grades, does to the vocational training of the mechanic.

It is an exercise of the powers of observation and reasoning rather than of the powers of productive manipulation or management. When taken in connection with School Gardening it becomes, in the garden, a form of Manual Training. It appears in every way desirable that Nature Study and School Gardening should occupy a place on the course of study alongside the kind of work which is indicated under the inclusive title of Manual Training. Nature Study and School Gardening are not a substitute for Manual Training; they should be carried on concurrently with it wherever practicable from the eighth to the twelfth year of age. After that they will fittingly pass into courses of vocational education, and will thereafter be more fittingly known under the names of Elementary Agriculture or Agricultural Education.

It appears in every way desirable that Nature Study and School Gardening should occupy a place in the course of study of every rural school and of all town and city schools where ground and facilities can be provided.

School Gardening at the Elementary Schools is a branch of Nature Study with a form of Manual Training, and not a technical training for the industry. At the same time it aims at producing results in plants, flowers, seeds, etc., which are in themselves of economic value. The educational value of the processes is increased by the keen interest of the pupils in preparing for and taking care of living things which are all their very own. In Circular 746, "Suggestions for the Teaching of Gardening," issued by the Board of Education of England, the question is presented with much clearness. The following extracts are taken from that paper.

SCHOOL GARDENING IN ENGLAND.

The Practical First.

3. School gardening, therefore, rightly understood, is a branch of "Nature Study" rather than a professional training for an industry. But it is also—and this is what makes it particularly suitable for the education of children—a study which aims at producing visible and tangible results, which appeals to their practical and utilitarian instincts, and is closely connected with their domestic life. It is, or should be, thoroughly "practical," and the theoretical part of the instruction should be directly related and, indeed, subordinated to the practical.

Nature Study and the Garden.

4. It is certainly not the purpose of this memorandum to underrate the value and importance of "Nature Study" in town schools or in country schools where the circumstances are unfavourable to the establishment of school gardens. There can, however, be no doubt that even in town schools the interest of Nature Study is greatly increased if it is illustrated by cultivation of plants on such a scale as is possible, and that the further development of Nature Study into gardening reacts most favourably on Nature Study itself and supplies it with a meaning and interest the value of which can hardly be exaggerated. Where this particular development is impossible, such other means as are available must be used to guard against the chief danger which affects Nature Study, viz., its tendency to fall back into a series of disconnected object lessons which, on the one hand, make no particular appeal to the interest of the child, and, on the other, lead to no understanding of general principles.

Useful for Experiment.

5. In one respect gardening has a great advantage over some other studies in that it lends itself very readily to experiment on the part of both teacher and scholar. Mistakes and failures in gardening are often more educative than successes, and though, where separate plots are cultivated by individual scholars or pairs of scholars, it is desirable to guard against the discouragement arising from wholesale failure, it is equally desirable to cultivate a sense of responsibility in the scholars by allowing them to realize the consequences of bad or slovenly methods, such as sowing too thickly, insufficient thinning or weeding, or neglect to act promptly when the onion or carrot fly appears. In this, as in all other subjects of instruction, the teacher has to keep to a just mean between doing too much and too little for the scholars.

Correlations.

6. As has already been indicated, gardening affords one of the best means of making the ordinary school work more concrete and more interesting. All education involves effort on the part of the scholar, and, even in favourable circumstances, some drudgery is inevitable, the discipline of which is wholesome. Drudgery, however, always involves waste of energy, and if we can set before the scholar an object of practical interest, the pursuit of which demands at the same time a high degree of accuracy and thoroughness, we reduce this waste of energy and make his education more profitable as well as more pleasant. The practical interest of the school garden can be used to give reality to all the ordinary class subjects, such as reading, writing, arithmetic, and composition.

Interests Parents and Ratepayers.

It is quite permissible for those who believe in the value of education, apart from results, to emphasize the utilitarian aspect of gardening. In the country as in the towns it is difficult to exaggerate the importance of enlisting the sympathy of parents, and of ratepayers who are

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not parents, with the work of the elementary schools. Gardening is, perhaps, the most important domestic industry of this country: it is in close touch with the kitchen on the one hand and with agriculture on the other. The handy and resourceful workman, whether on the farm, or in the workshop, is usually a good gardener, and the keen competition at village flower shows extends to all classes. There is therefore in the rural community a large stock of sympathy and interest to draw upon, and interest of a kind which will tend to protect school gardens against the danger of dilettantism. The suggestions of the practical rural economist are indeed very likely to enlarge the education influences of the school garden.

Requires Competent Teacher.

10. Instruction in gardening should, wherever such an arrangement is at all possible, be given by a member of the ordinary school staff. It is, of course, very desirable that the teacher should take every opportunity of improving his qualifications by attending such courses of instruction as are available, and he will naturally welcome any help which the Local Education Authority's organizer or superintendent or visiting instructor in horticulture may be able to give. But the importance of maintaining an intimate and reciprocal relation between the garden work and the ordinary school work is so great that the employment of the ordinary teacher, with his personal knowledge of the scholars and of school methods, is usually preferable to the employment of a highly trained or professional visiting instructor, even if, from a technical point of view, there is some loss of efficiency. And from a purely practical point of view the ordinary teacher has the great advantage of being able to alter his time-table to suit the weather.

On the other hand, where there is no teacher in the school who is competent to give reasonably effective instruction in gardening, it will be necessary to secure the services of a competent visiting instructor if gardening is to be attempted, though the ordinary teacher should always attend the instruction both as a learner and with a view to keeping up the connection with the ordinary school work. Where this outside assistance is not available, and where there is no teacher in the school who takes an intelligent interest in gardening, it should not be attempted at all. Perfunctory and insincere work in the garden is mischievous both to teacher and scholar, and discredits the whole movement towards practical education.

SCHOOL GARDENING IN ONTARIO.

Ontario has a Director of Elementary Agricultural Education, with his headquarters at the Ontario Agricultural College, Guelph, Ont. From time to time excellent circulars and bulletins regarding School Gardens and pupils' work in them are published by the Department of Education in co-operation with the Department of Agriculture and the Schools Division of the Ontario Experimental Union.

The Experimental Union, as it is usually called, was formed in 1879 for the purpose of encouraging the scientific study of farm crops and farm operations amongst the students of the Ontario Agricultural College.

While actual membership has been restricted to students, ex-students and teachers of the College, it offers everyone the opportunity of taking part in its co-operative experiments. Up to the end of 1911 over 70,000 experiments were carried on by its members and associates in the Province of Ontario in different lines of work relating to Agriculture—Farm Crops, Fertilizers, Poultry, Fruits, Vegetables, and Forestry. This has helped very much in advancing the chief industry of the Province.

A *Schools Division* of this Union was organized in 1909. It aims to adapt the work of the Union to the needs of the schools, giving to boys and girls a training in careful work and observation, so that when they are older they may take up some of the larger experiments or solve for themselves the problems that will arise in their daily work.

To be a good member of the Union implies:—

1. That you will learn to look forward and plan your work.
2. That you will follow instructions carefully.
3. That you will do your work well and not neglect it.
4. That you will observe closely what is happening to the plants in your garden; that every day you will learn a little more and become a little wiser and a little more patient.
5. That you will grow the very best flowers and the very best vegetables that can be grown in your garden, and the very best grain in your experimental plots, and that you will not be satisfied with anything but the best.
6. That you will be interested in your schoolmate's efforts, ready to help him and ready to acknowledge his helpfulness to you.

The circulars of the Department of Education are appropriately illustrated. One deals with the general subject of Children's Gardening under such headings as:—

How to keep your Garden Journal;
 Garden Tools and their Care;
 What to grow and how to procure Seed;
 Locating and laying out a Garden at Home;
 Preparation of the Soil;
 Planning the Plot and planting the Seed;
 Protecting Seedlings;
 Mulching, Watering and Cultivating;
 Thinning and Transplanting;
 Picking Flowers;
 Gathering Seed; growing Bulbs;
 Garden Rubbish, etc.

Circulars are also issued giving detailed information on the work of a school experiment, with a particular plant or crop. Under the subsidiary *Cultural Directions*, useful suggestions and directions are offered in regard to: Time of Planting; Soil and Manuring; Sowing; Cultivating; Weeding; Thinning; Harvesting; Storing; Estimate of Yield; Using; Reporting.

Other circulars contain the requisite information on the carrying on of simple experiments with cereals, and are accompanied by charts which illustrate some of the experimental work at the Agricultural College. Another chart with its supplementary circular contains just the information boys and girls in rural districts should have on Alfalfa or Lucerne, with the offer of seed to sow a small plot and directions how to care for the crop.

SECTION 3: HOUSEHOLD SCIENCE.

A third group of educational names, to be dealt with briefly, includes Household Science, Domestic Science, Domestic Occupations, Household Arts, Housekeeping, Domestic Economy and Home Economics.

Domestic Science and Household Science in their elementary forms shade into Nature Study and Manual Training, and have close relation to them. It would be well if, until the 11th year of age, they were not used in connection with pupils' work as indicating anything different from or other than Nature Study

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and Manual Training. The terms Household Science, Domestic Science, Household Arts, Housekeeping and Domestic Occupations would then indicate the forms of education to be given for vocational purposes after the girls were 11 or 12 years of age. Sewing before 11 or 12 years of age finds its appropriate place as a division of Manual Training.

The terms Domestic Economy and Home Economics have been used to include the whole range of educational work for home-making and housekeeping occupations.

SECTION 4: VOCATIONAL EDUCATION, INDUSTRIAL TRAINING AND TECHNICAL EDUCATION.

Vocational Education is the term which has come into frequent use during recent years to indicate the form of education which purposely provides definite training and definite knowledge expected to be useful in enabling an individual to carry on his vocation in a way most advantageous to the community and satisfactory to himself. Vocational Education has been classified for convenience of explanation under six headings, each one designating the group of vocations included under it, such as professional, industrial, agricultural, commercial, marine, and housekeeping. Industrial Training and Technical Education is another way of designating the same thing as Vocational Education for all except part of the professional group, such as Lawyers, Doctors, Clergymen, etc.

In some quarters a narrower interpretation has been given to Industrial Training and Technical Education, and confined it to such instruction and training as have a bearing directly and chiefly on knowledge and ability with materials, tools, machines, manipulations, processes and products. However in all the countries visited by the Commission systems and methods of Industrial Training and Technical Education provided by public authorities include also instruction in Language, Arithmetic, Science, History, Literature, usually Physical Culture and Civics or good citizenship, and not infrequently Singing.

Vocational Education is older than any form of liberal education. Men have always followed occupations, requiring more or less skill and intelligence, by which they could secure a livelihood; and they have always trained the young for these occupations. The reason given for the enlargement of the field of the public school is that the changed conditions of industry, and of living in towns and cities, have withdrawn from children opportunities which were formerly theirs of participating in housekeeping and industrial work in such a way that they were prepared to go on with it after their school days were over. The school was really organized to supplement, by the arts of reading, writing, arithmetic and drawing, what the participation in the work and life of the home and occupations of the parents did provide. The changing conceptions of education are due not wholly to the existence of new or different needs on the part of the people. Formerly the training of the home, of the occupation, of the community and its various institutions, was only supplemented by the education of the school. Now the school is absorbing the whole time of the child, while the changed

conditions of industry and living have withdrawn the old opportunities. Where and while this is the case, the school becomes the only agency available to provide the new supplementary training for the all-round equipment of young people for occupations and citizenship. It must be made competent and adequate.

CHANGING VIEWS OF EDUCATORS

The change which has come over the views of the leading educational authorities, as to what may be expected from the school, is set forth in very many reports and books of recent years. Extracts are given from the book, "The Problem of Vocational Education" by Mr. David Snedden, Commissioner of Education for the State of Massachusetts; from "Beginnings in Industrial Education," by Mr. Paul H. Hanus; and from the report of The National Society for the Promotion of Industrial Education.

"THE PROBLEM OF VOCATIONAL EDUCATION," BY DAVID SNEDDEN, PH.D.,

THE RELATION OF VOCATIONAL EDUCATION TO MANUAL TRAINING.

In modern educational doctrine, MANUAL TRAINING occupies an intermediate field between VOCATIONAL and liberal education. In the minds of many, who were originally influential in introducing drawing, manual training, household arts, and mechanical arts, these studies were designed to contribute to vocational efficiency. By school-masters and educational administrators, their contributions to liberal education have been constantly exalted, and these subjects have been largely divested of vocational significance.

Few will doubt that a wide range of contact with tools and the materials to which tools are applied, as found in the hand-work, bench-work, gardening, cooking, and in the machine-shop work of the modern schools, is exceedingly desirable. It is a fact, however, that the MANUAL TRAINING so given is rarely controlled by the motive of vocational training, and that it rarely results in any recognizable form of vocational efficiency. In its contributions to VOCATIONAL EDUCATION, it is more nearly comparable with the development which results from play and other forms of spontaneous experience-getting.

The MECHANIC ARTS and technical high schools, which were originally expected to train the higher ranks of factory and trade-workers, have generally failed to achieve this end. These magnificent schools have been sought in increasing numbers by youths so situated as to be capable of an extended liberal education.

The spirit of approach has been that of the amateur, or dilettante, rather than of the person interested in attaining vocational fitness. Only slowly has the work been removed from the field of amateurish effort.

Furthermore, a generous course in MANUAL TRAINING actively followed provides a variety of suggestions for subsequent choice of a vocation. Through it, many boys will discover a bent, or capacity, along which a VOCATIONAL EDUCATION may be carried out.

If we assume that little distinctively vocational education will be found in the elementary schools, we may also assume that many pupils will be allowed even greater opportunities than are now available for the development of their capacities in the field of the INDUSTRIAL ARTS, studied mainly from the point of view of gaining variety and range of experience, and a basis for the subsequent selection of vocational activities.

Here again, as in the last section, it must be asserted that MANUAL TRAINING and VOCATIONAL EDUCATION should be controlled by different purposes to a considerable degree, though each contributes measurably to the purposes of the other.

VOCATIONAL EDUCATION must be carried on, as far as possible, under the conditions of a workshop. MANUAL TRAINING, as a part of liberal education, must not divorce itself from contemporary life; but, on the other hand, it must be approached from the standpoint of the breadth and interest inherent in the true instrumentalities of liberal education.

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"BEGINNINGS IN INDUSTRIAL EDUCATION," BY PAUL H. HANUS.

It seems worth while to indicate in a few sentences the difference between **MANUAL TRAINING** and **INDUSTRIAL TRAINING**. Manual training is a means of general education just as history or chemistry or language is a means of general education. It has materials of its own and a method of its own, and hence the result is a peculiar kind of knowledge and power due to the nature of the subject and the method that it demands.

It is, however, as now carried on, usually much too general to be comparable to industrial training. **MANUAL TRAINING** abstracts the principles of all trades and teaches them. It ought to make a pupil generally "handy." It is, if properly carried on, an excellent preparation for industrial training. **INDUSTRIAL TRAINING** goes further. Besides teaching all the processes of a given trade from the first attack on the raw material to the last touches on the finished product, it teaches the theoretical foundations of that trade. Hence it gives the worker a **TECHNICAL KNOWLEDGE** of his trade, and begins the development of skill in the practice of it. It must not be inferred, however, from what has just been said, that an industrial school can turn out a journeyman. The skill of the journeyman can be developed fully only in the factory.

In the industrial school everything has its specific application. Therein lies its value and its significance. In training for a trade or in the pursuit of that trade itself, there is constant opportunity for the application of all that the pupil has learned, and hence the possibility of of progressive growth in thinking about his calling and in his command over it, not only in the processes of the trade, but in all that the trade means.

THE NATIONAL SOCIETY FOR THE PROMOTION OF INDUSTRIAL EDUCATION.

As reported by Mr. Charles R. Richards, with whom the Commission had the advantage of conversations and discussion on the subject, the National Society for the Promotion of Industrial Education, at its annual convention in Boston, 1910, considered the question of nomenclature used in discussions on Industrial Education. The Executive Committee of the Society formulated a brief presentation of desirable terminology, involving some important distinctions; and this terminology which has been adopted by the Committee is as follows:—

Vocational Education includes all forms of specialized education, the controlling purposes of which are to fit for useful occupations.

Vocational Schools in a broad sense include all commercial, agricultural, industrial, household arts, and professional schools with the above purposes.

Industrial Education denotes the field of vocational education designed to meet the needs of the manual worker in the trades and industries, including the occupations of girls and women carried on in workshops.

Agricultural Education is that form of vocational education which fits for the occupations connected with the tillage of the soil, the care of domestic animals, forestry, and other useful work on the farm.

Household Arts Education is that form of vocational education which fits for occupations connected with the household.

Manual Training is the training of the hand, especially by means of the tools which are used in various industrial processes, employed as an agent in general education.

Manual Training High Schools (Mechanic Arts Schools, sometimes called Technical High Schools)—Manual Training had its beginning 30 years ago in secondary schools with four distinct avowed objects in view: (1) To educate the whole boy, to develop the entire area of his brain; (2) to lay a broad and appropriate foundation for higher education; (3) to enable a boy to discover his innate mental and physical aptitudes; (4) to furnish a broad basis for an industrial career should one's aptitude lie in the direction of the mechanical arts. It admitted only boys of 14 years or more who had finished the Grammar grades—the average was about 15.

Manual training high schools are defined in the report of the Committee on the Place of Industries in Public Education made to the National Education Association in 1910, as follows:

"The manual training high school, or the manual training school, is a school of secondary grade in which a greater or less amount of hand-work is included in the curriculum, and in which the greater part of the academic instruction is similar to that found in other high schools and college preparatory schools, neither the manual nor the academic instruction being especially planned to be of direct vocational service."

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It is evident that manual training schools as represented by the above definitions are not vocational schools as previously defined.

Industrial Schools include all special schools (a) that prepare for entrance into industrial employment and (b) schools that give supplementary instruction to those already engaged in such employment.

Trade Preparatory Schools (General Industrial Schools, Intermediate Industrial Schools, Pre-apprenticeship schools)—Trade preparatory schools are schools that offer training for boys and girls between 14 and 16 years of age in practical industrial processes, including such drawing, science and mathematics as will prepare them for entrance into the trades or industries as efficient beginners.

Trade Schools are schools that afford specialized practical training in manual trades with the object of preparing for immediate practical work at the trade as a wage earner. Such schools aim to take the place of apprenticeship in whole or in part.

Technical Schools are schools giving training in practical industrial processes, and which at the same time offer advanced instruction in the scientific and mathematical principles upon which these processes are based.

Technical High Schools are public schools of secondary grade having the distinct purpose of preparing pupils for industrial careers requiring scientific and technical knowledge beyond that needed by the skilled mechanic.

Continuation Schools—1. Evening Continuation Schools.—Evening Continuation Schools are schools attended by those already engaged in useful employment which provide instruction directly related to such employment. Such instruction may consist of either practical work, or related subjects of study, or both.

2. Part-Time Schools or Day Continuation Schools.—Part-Time or Day Continuation Schools are schools for persons (commonly apprentices or other learners) engaged in useful employment, which give instruction supplementary to such employment during a portion of the working time of the pupils.

Co-operative Schools are schools conducted under an agreement between the school and an employing establishment, by which students entered in schools are given opportunities for practical work in the establishment for a portion of their time.

ENGLISH AND CANADIAN OPINION.

The English Education Act of 1899 contains the legal definition of technical instruction for the purposes of that Act and for the application of public money under it:

"Technical instruction" "shall mean instruction in the principles of science and art applicable to industries, and in the application of special branches of science and art to specific industries or employments. It shall not include teaching the practice of any trade or industry or employment."

In a communication furnished to the Commission by Dr. W. L. Goodwin, Director of the School of Mining, at Kingston, Ont., he states:

"TECHNICAL EDUCATION may be defined as a course in the principles and applications of the sciences with the purpose of preparing men and women for professions and occupations requiring trained intelligence, skilful manipulation, and more than the usual store of information.

"INDUSTRIAL TRAINING may be defined as the actual teaching of skilled labor, as formerly done by the apprenticeship system, but now in the more advanced countries, as in France, Germany, Switzerland, etc., carried on in schools where there is an opportunity of teaching more than the mere showing how a thing is done.

"But Technical Education and Industrial Training shade into one another. In fact a completely organized system of Technical or Industrial Education provides for every grade of worker from the engineer who plans and directs to the skilled labourer who uses his hands and head, rather than his head alone. Such a system should be so constructed as to provide from the beginning for

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the advancement of the likeliest youths through the lower schools and their diversion at certain points to the schools and courses leading to the higher and the highest kind of technical education. On the other hand the pupils whose ability is seen to be more mechanical should be turned towards the industrial training schools. This is the ideal towards which we must intelligently work."

Dr. John Seath, in his report on *Education for Industrial Purposes*, says:—

The term Industrial Education is applied, in its limited sense, to general courses which prepare for any trade, as well as the special courses which prepare for individual trades. In many countries it includes, also, the education of those engaged in transportation. It deals with both theory and practice; but in all the schools that provide it, especially in the Trade Schools, the emphasis is on the practice. Locally, it should be added, the term has a still more limited meaning, being applied to the courses in those schools in which are trained, for various manual occupations, the waifs and strays from the elementary schools.

The term Technical Education is applied, in its limited sense, to the courses provided for those who are designed for the higher directive positions in connection with the industries; that is, the courses for overseers and superintendents, as well as for students of the technological schools and the university departments of Applied Science. Here, however, the emphasis is on the theory, and machinery and other apparatus are generally used only to establish the connection between the theory and the practice. Quite mistakenly in Ontario the term Technical has been applied to the cultural and practical courses in Manual Training and Household Science. With greater appropriateness, however, it is applied to both Industrial and Technical Education, as defined above. Accordingly, when in this report the context makes the meaning clear, I will use each of the terms in its more limited sense, and the term Technical to include both.

GENERAL CONCLUSION.

The examination of many explanations, besides those already quoted, and the current usage of the terms support Dr. Goodwin's statement that Technical Education and Industrial Training shade into one another. The most, and perhaps the best, that can be said is that, where the emphasis is laid upon the development of ability and skill in the handling of materials, tools, machines and products, the training or education may fittingly be called "Industrial"; and where the attention is given chiefly to science and calculations, and emphasis is laid upon the acquisition of knowledge of principles and their applications, the training or education may be called "Technical." No dividing line can be used to mark the one from the other. The experiences of an education which is mainly "Industrial" are a means towards the accomplishment of the object of the education which is "Technical." Each, in some measure in its processes, includes part of the other. On the industrial side progress in knowledge of qualities and principles comes from doing; and on the technical side some progress towards industrial skill and ability results from the processes of acquiring knowledge of qualities, theories, principles and calculations.

SECTION 5: THE MACDONALD FUNDS.

Funds were provided by Sir William C. Macdonald, of Montreal, to promote Manual Training, Seed Grain Selection, School Gardens, Nature Study and Household Science as parts of a movement to assist in building up the country

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in its boys and girls. The story of that Movement is found in the Report of an Address before the National Education Association of the United States for 1909. In view of the great extensions and improvements in Canada of what was aided in the beginnings by the Macdonald Funds, the statement is presented here. This is done in order that provincial and local authorities may have the facts before them when considering the best way to use any grants which may be obtained from Dominion or other sources to promote Drawing, Nature Study, Experimental Science, Manual Training and Household Science.

OBJECT OF THE MOVEMENT.

The Macdonald movement, as helped by Sir William C. Macdonald, has nothing destructive in it. It does not desire to destroy anything that now exists in rural districts, except weeds, but it hopes to help in building up something better than is now known and done, and thereby displace what is poor. It aims at helping the rural population to understand better what education is and what it aims at for them and their children. It plans to help in providing more competent leaders for the horticultural and agricultural population. Somebody's watchfulness, somebody's thoughtfulness, and somebody's thoroughness, are always required; and the progress of the people in all worthy ways can be increased in what might be called geometric ratio through intelligent leaders who possess and use such qualities with unselfish public spirit.

In 1898-99, in fact before that, Sir William C. Macdonald had been most anxious to help to improve rural schools in Canada, and he sought help in the way of plan-making and administration. It appeared that the first thing to do was to give object-lessons of Manual Training in the elementary schools of cities and towns so as to educate public opinion in favor of better methods of education in places where newspapers were published and to which the country people looked for guidance.

* * * * *

The man in the rural district imitates the man who lives in town. The man who lives in town has the best chance of being a leader; and the man in the country would not be willing to take a lower grade of education for his boy than a town or city man. It was important to get the leaders from the city to recognize improvement by means of practical education. This was the reason for the Macdonald Manual Training Fund and its work. Manual Training was the first step in this plan. The rural school was not an after-thought; it did not come out of the Manual-Training Movement. The Manual-Training Movement was a step toward the other end—that of improving the rural schools. Hitherto the wealth and wisdom of the country have been given to town schools. The little rural school has been left without help.

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MANUAL TRAINING CENTRES.

Sir William C. Macdonald furnished funds to establish Manual-Training Centres in connection with the public schools in twenty-one places, from Prince Edward Island to British Columbia, and to maintain them without cost to the pupils or the public for a period, in most cases, of three years. At first special teachers of ability and experience were brought in from outside, mostly from England. Some twenty-seven Manual-Training teachers were thus brought into Canada. As time went on Canadian teachers were trained and became duly qualified. Before the end of the period of maintenance by the Macdonald Fund, there were forty-five Manual-Training teachers on the salary roll at a cost of some \$3,600 per month, and more than 7,000 boys were taking the courses. Summer courses were provided for teachers of urban and rural schools. In the cities on Saturday forenoons, or at some other convenient time every week, classes were arranged for the teachers from whose rooms the boys went to the Manual-Training-Centres. In Ottawa these classes were attended by over ninety teachers, and in Montreal and in Toronto by over a hundred in each place. In 1903 (in Montreal in 1904) the local authorities in the several provinces took over and extended the work. The equipment was presented free to the school boards, and in the case of the Normal Schools to the Provincial Governments. In 1909 over 20,000 boys and girls in Canadian schools received the benefits of Manual Training in their regular course under the school authorities as a result of Sir William's benefaction in giving that form of industrial and agricultural education a good friendly lift.

SEED GRAIN PRIZES.

Out of the Macdonald Manual Training Fund came the Macdonald Seed Grain Competition carried on by boys on farms dotted all over Canada from the Atlantic to the Pacific. The main purpose of this movement was to improve the crops of Canada by encouraging the general use of seed improved by selection from varieties the product of which is in demand or has a relatively high market value. The use of such seed increases the quantity of produce per acre; makes the quality better, and thus renders rural occupations more profitable and the people who follow them more prosperous and more contented. Here was a great chance to do some educational work in progressive agriculture; to do something interesting, something attractive, something definite, something beneficial to the whole community, something easy and yet with plenty of difficulties. Farmers and their families may fail to appreciate the educational advantages of a plan or scheme set out in a written statement, but here was something which would be so helpful and instructive to boys and girls that they would go on with it, and the habits of observation and thought and study would remain with them. \$10,000 for prizes would set and keep this going for three years. Sir William Macdonald provided the money with all goodwill as prizes to boys and girls to encourage them to carry out in practice the plan of selecting the largest heads of the most vigorous plants and growing seed from those heads on a plot by itself.

The yields from the crops of 1903 compared with those of 1900, on an average for all Canada for spring wheat, showed an increase of 18 per cent. in the number of grains per hundred heads, and 28 per cent. of increase in the weight of grains per hundred heads. In oats the figures were 19 per cent. of increase in the number of grains per hundred heads, and 27 per cent. of increase in the weight of grains per hundred heads. These were results from several hundred seed grain plots operated by boys and girls. Altogether over 1,500 entries were received. Out of that number 800 completed in full the first year's work, and 450 of them completed the three years' work in a satisfactory manner.

CANADIAN SEED GROWERS' ASSOCIATION.

Many of the farmers on whose farms the competition was carried on were formed into the Macdonald-Robertson Seed Growers' Association, out of which grew the Canadian Seed Growers' Association. Its annual reports contain a marvelous record of valuable public service. Leading members of the association have reported several distinct and definite gains from the method of selection which had been followed by the members of the association, namely: the size and quality of the kernels definitely improved; the strains of selected seed maturing more evenly; the strains becoming better adapted to local conditions; varieties being kept pure; the strains becoming more resistant to disease, and gaining in productiveness. All these features are highly desirable, and give added value to the crops in every case.

SCHOOL GARDENS.

Under the Macdonald Rural Schools Fund, arrangements were made for providing a school garden at each of five rural schools in each of five Provinces. A trained instructor was placed in charge of each group of five gardens and of the Nature-Study work at them. He spent one day at one school and at the others in turn. The cost of this was met by Sir William Macdonald.

At the School Gardens an effort was made to give the children information and training in three important matters in connection with agriculture: the selection of seed; the rotation of crops; and the protection of crops against weeds, disease, and insects. This is really Industrial Education. Children find out something by doing, observing, and recording the results themselves. All worthy progress, in matters that are worth thinking about, springs from learning the lesson of consequences—the application of the principles of cause and effect. As soon as a child understands that, and governs his life accordingly, he becomes a better pupil and the promise of a better citizen in every sense.

The School Garden is one way of making rural life more popular as well as efficient. It may be the first step toward inducing the people to pay more to make the schools more efficient. The best education in rural schools should make the people love rural life, and also enable them to make it more profitable. The best way to make any workman like his work is to make him understand it. The beginnings of all that and much more are laid in the schools.

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In the largest school, two hours' work per week by the pupils was found requisite to keep the gardens in proper condition. In one school the enthusiasm was so great that the pupils did all their garden work outside the regular school hours. At this school, also, the garden did not suffer from neglect in the slightest degree during the midsummer vacation of six weeks. Experience indicates that when the gardens are fully organized the plots can be well kept by devoting two half-hours per week to the work. This time is mentioned, not as the ideal condition, but as an encouragement to those who may desire to start School Gardens in districts where prejudices are likely to be met. The fact is that in the ordinary ungraded school, and for that matter in the urban school as well, the working power of the pupils is ill-sustained throughout the day owing to their merely forced interest in much of the prescribed work. An awakening as to the educational waste of our schools is coming, and when the School Garden is seen in its true relation, it will have a period in each day of the school program during the growing season. The children have ample time to spare, and the work of the gardens is promoting their intelligence and progress in the ordinary school course.

The following extracts are from letters and reports received from teachers in charge of School Gardens, Carleton County, Ontario:—

The School Garden seems to fill in the weak parts of our education for the growing child, as it tends to the molding and developing of his character. I know that the general discipline in my room has been helped by the garden work, and also that the pupils like their work in the schoolroom better on account of it. If our politicians would try teaching school with a garden and then without one for two years, as I have done, I am certain that they would be willing to grant all the financial support required; yes, probably be too liberal with it.

(Miss) M. YORE
Richmond Public School

My pupils are more observant than they were before we started School Garden work, and seem to acquire a clearer understanding of all their work. Mr. A—— told me that the School Garden had been a benefit to his boys, and that they were more independent in their work both in school and out of school.

W. PETTAPIECE
Principal North Gower Public School.

I am ready to put myself on record as saying that the School Garden has relieved much of the drudgery of the school work to which I was always accustomed. This year we had our School Garden, and it has been the pleasantest year of my school work. I would never again pass a summer without a School Garden. I consider that the chief value of the School Garden lies in the effect which it produces on the moral tone of the school. The juvenile sense of ownership is the greatest insurance on the success of the garden, and incidentally on the care of the whole school property. The garden is the central point of interest for this end of the township, and it is not unusual to have as many as a hundred visitors at the garden on one Sunday afternoon. I have noticed that the cultivation of flowers has received more attention in the homes since the advent of the School Garden, and I am often consulted about this work. I have not heard any unfavorable opinion expressed by responsible persons in this community, but on the other hand the most progressive men have spoken highly of the garden work.

B. A. HOWES

Macdonald Consolidated School, Guelph
(Late of Bowesville Public School).

It is impossible to overestimate the value of School Gardening on our boys and girls. Instead of being detrimental (as at first supposed) to their advancement in the other branches of learning, it has had the opposite effect. Since engaging in the work my boys and girls have been first in all examinations, competing with children from other schools, including city schools. The whole tone of the school has been improved morally, socially, and esthetically. Our boys and

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girls have now a reverence for life unknown before, and it has awakened in them, as nothing else could do, a deeper interest in all life around them. It has helped to make school life a pleasure. Now the boy makes the excuse to get to come to school instead of the excuse to remain at home. It has aroused the interest of the entire community. The parents take a pride in "the work of our boys and girls in the School Gardens," and never fail to bring visitors to see the work that is being done there. The pupils learn practical gardening, and already their advice and assistance are often sought by parents and others interested in the cultivation of plants. Its influence is seen also in the plots and flower borders outside. Our school board has come to realize the value of this work and are anxious to have it continued.

G. A. MOORE
Principal Carp Public School.

CONSOLIDATED RURAL SCHOOLS.

Four object-lesson Consolidated Rural Schools were provided by the Macdonald Rural School Fund—one in each of the four Provinces of Ontario, New Brunswick, Nova Scotia, and Prince Edward Island.

They were located at places chosen or approved by the Provincial Departments of Education. In each case a new building was erected to take the place of the small schools which at that time were serving the single sections proposed to be consolidated. They were each equipped with ordinary classrooms and an assembly hall, and also for Manual Training, Household Science, and Nature Study with a School Garden.

A Consolidated School Board was elected according to the school law of the Province concerned. The school in Nova Scotia was opened in September, 1903; in New Brunswick, September, 1904; in Ontario, November, 1904; and in Prince Edward Island, early in the summer of 1905.

The Macdonald Rural School Fund met for a period of three years the additional expense of the Consolidated School over the cost of the small rural schools which formerly served the locality. The school sections contributed exactly the amount of the former expenditure, and the extra cost was met by the Macdonald fund for three years to enable the people of four provinces to have these object-lessons and experiments in education.

The educational results from these schools have been entirely satisfactory to the authorities, to the teachers, and especially to the parents and children. The average daily attendance at the Consolidated Schools was on the whole over 55 per cent. higher than the average daily attendance at all of the schools which formerly served the localities; at Kingston, N.B., it was over 140 per cent. higher.

The attractiveness of the Consolidated Schools becomes in itself a form of compulsory education—the interest of the children being the power which secures regular attendance. A great point has been gained when love of the school and love of education there set the pace for progress.

One of the gratifying results is the larger number of boys and girls, young men and young women, from rural homes, who are doing advanced or High School work. At one of these schools there were about 100 pupils in the High school grades. Many of these are preparing to be teachers in rural schools. When teachers, who themselves have been educated in Consolidated Rural

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Schools, with Nature Study, Household Science, and Manual Training, teach in single rural schools they will make the influence of their own training tell throughout many of the one-room schools.

THE MACDONALD INSTITUTE.

Sir William Macdonald gave the sum of \$182,500 to provide buildings and equipment at the Ontario Agricultural College, Guelph, to train teachers now in the service for this "new education." Besides serving that purpose the institute has become a headquarters for Manual Training, for Household Science, and for providing short courses of instruction and training for farmers' daughters and others in cooking, sewing, domestic art, and other branches of Domestic Economy. Two buildings were erected. Short courses of instruction in Nature Study and School Gardens were provided without fees to teachers. The governments of four eastern Provinces where the Consolidated Schools were established gave scholarships to enable teachers to attend. Over 200 teachers took these courses. When pupils who pass through Consolidated Rural schools go on through the Normal Schools, each with advanced work and suitable professional courses in Manual Training, Nature Study, and Household Science, they will be thoroughly qualified to carry on this better system of education.

MACDONALD COLLEGE.

Macdonald College grew out of Sir William Macdonald's keen desire to help the rural population to build up the country and to make the most of it and themselves. In some measure it grew out of the School Garden Movement and the Consolidated Schools, to serve as a headquarters for the training of leaders. In some measure it grew out of the Manual-Training movement, which is a first necessity in the general education of pupils if they are to profit by Technical and Industrial Education afterwards. In some measure it grew out of the oft-expressed desire on the part of the educational leaders, over the whole Dominion, for such advancement and improvement of education for rural communities as would not only prepare the children for life at its best in rural occupations, but would also satisfy the people as being the right training for their children.

The work of Macdonald College is carried on in three departments or schools. In connection with the School of Agriculture there are the research and illustration departments.

There is a School of Household Science with research, and instruction for the homes of the people. That branch treats of the three prime necessities of life—food, raiment, and housing. It is just as important that the woman should be educated for her sphere of management as the man for his.

In the School for Teachers the instruction and training are for teachers preparing for city and rural schools. It is important that the rural school and its teacher should stand in with those two other activities—the occupations and the homes of the parents—and that the children should be thoroughly

trained toward ability for, as well as an understanding of, what will be required of them in the fields and in the homes. The threefold character of the College fits it to train leaders for rural communities.

The instruction is vocational for the three fundamental, mothering occupations which nurture the race: (1) farming, whereby man becomes a partner with the Almighty and, through co-operation with nature, obtains the benefactions of Providence for food, clothing, and shelter; (2) the making of homes; (3) the teaching of children.

At Macdonald College the education of leaders for those fields of human endeavor is being carried on in close correlation. In times gone by the segregation of teachers-in-training, in institutions devoted exclusively to their use, had been no better for them than the isolated training of leaders for rural life in Colleges of Agriculture had been for their students. Until recently, neither of them had much in their courses which identified formal or liberal education with the activities of the homes. The substantial advantages of co-education, in this larger sense, are already evident. The homes, the schools, and the farms are finding the common centre from which radiate plans and labours: "A little child shall lead them."

CHAPTER IV: INDUSTRIAL TRAINING AND TECHNICAL EDUCATION IN RELATION TO NATIONAL PROBLEMS.

SECTION 1: THE NATIONAL HERITAGE.

Self-governing peoples grow ever stronger when they are animated by some dominant purpose to maintain their ideals by further achievement. The reputation of Canada is a matter of concern; its character is of much greater consequence. Its place of honor, influence and power among the nations is worth caring for; the kinds of training and instruction which determine the abilities and qualifications of its young people for working and living are of supreme importance.

Towards the end of the last century Canadians began to find themselves as a united nation of agricultural, industrial, fishing, mining, commercial, and professional workers and home-makers.

Never before in the history of the race did seven millions of people have such a heritage come into their free possession. If the area of Europe is eleven, that of Canada is twelve, and much of it destined to be the setting of good homes of a robust people. Where else can be found a better place for homes for a people moved by the dominating purpose to win their way up by the strength of intelligent labour, justice and good-will, and to bring up with themselves all who may come to them?

THE PHYSICAL SETTING FOR HOMES.

One can afford to speak of Canada in dimensions of thousand-mile stretches. Physical setting means much for the glory of human life in the first stretch of a thousand miles in from the Atlantic. The human race can be at its best in physique, in endurance, in tenacity, in aspiration, where apple trees grow in beauty and bounty and the summer air is full of the fragrance of clover blossoms. Here there is plenty of running water, with showers and sunshine in alternate abundance and, best of all, wholesome children rolling on the grass, picking flowers and climbing the apple trees.

Then there are a thousand miles of wilderness, a great reservoir north of the Great Lakes. It tempts the adventurous to seek gold and silver; its great areas for trees and lakes moisten the air and refresh the thirsty land on both sides by genial rains gathered from the wastes.

Then come a thousand miles of prairies, stretching out to the foothills of the Rocky Mountains. It took a thousand times a thousand years to make that place fit for habitation now. The frugality of prodigal nature was storing plant food in the soil for crops, not only that men might ship wheat, but that boys and

girls should have the finest chance that the race has found hitherto to be a strong, dominant, lovely and loving people.

Then half a thousand miles go over the mountains to the Pacific Ocean. It is a piece of the Creator's fine art in the rough, with the impressiveness of nature's majesty and the instability which endures. Tucked in between the mountains are fertile valleys with apples and plums and wheat to sustain the homes. A great asset is that five-hundred mile stretch, the mountain slopes with forests and coal and gold and silver, and the streams teeming with fish from the inexhaustible feeding places of the north.

That is a glimpse, merely the headlines, of the real estate for the national home. The responsibility now is that the people may be quite a match for it.

OCCUPATIONS CALL FOR CONSTRUCTIVE, CONQUERING QUALITIES.

Occupation conserves the best that humanity has achieved. Canada is happy in occupations that minister to greatness in character. A new country needs the constructive and conquering qualities as well as the sedentary, absorbing, remembering capacities.

There are forests in vast areas, some of them as yet unsurveyed, and a climate and soil which let nature far more than restore the lumberman's cut. The forests are inexhaustible, in the abundance of their serving power for coming generations, now that a beginning has been made to conserve them by preventing fires, by providing patrols, and also by diffusing knowledge, training and conviction throughout the common schools.

Then there are fisheries. Men who are not afraid, who go down to the deep in ships, see the wonders of the Lord while they do their duty for their families. There is conservation of the quality of life by the unboasting, and the uncomplaining, heroic commonplaces of daily toil. With quiet tenacity, against conditions of discomfort which cannot be escaped, and carelessness of personal ease, such men teach others how to live.

Canada has great potential wealth in minerals. The areas and quantities of coal, iron, nickel, copper, silver, gold and oil are still in course of exploration and enumeration. The development of coal mining has been greatest in Nova Scotia, New Brunswick and British Columbia. The miners in Cape Breton may be taken as typical of the best of the others. Their physique and intelligence are tributes to the sturdy stock from which they sprang. The effectiveness of their training must be continuously enlarged and extended to all mining workers.

The water powers are not merely to illuminate houses and run machines, factories and cars, but to enlarge leisure by having the heaviest tasks done by further control and application of the electric current.

The other fundamental occupations which engage the large majority of people are farming, industrial work, making homes and teaching and training the young. These together provide some of the opportunities and means of culture which young people and grown people can turn into power—power of knowledge, of action and of character.

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The farmer follows one of the conquering, constructive occupations, gathering wealth out of the otherwise chaos. His labor creates wealth and conserves the health and virility of the people. Farming is much more than moving soil, sowing grain, destroying weeds and harvesting crops. It is taking care of part of the face of Mother Earth as a home for her children, and providing their daily bread.

UNITING RURAL AND URBAN COMMUNITIES.

The growth of industrial activities has been marvellous for a period of 25 years. The prospects for the next 25 years are that the total growth will be very much greater.

The increasing numbers of thriving industries in comparatively small towns throughout all the eastern Provinces is a matter for congratulation. There are many establishments from which products are being shipped throughout the whole of Canada. In many cases these towns enjoy no special shipping facilities or any apparent advantages in cheap power or nearness to source of raw materials. The enterprise, ability and energy of a few men enabled them to make beginnings upon a small scale from which businesses employing from 20 up to 200 persons and over have grown up. The factories are situated where abundance of fresh air and light prevail, and where workmen and women can provide homes under favorable conditions.

Many instances might be mentioned from the observations of the Commission. From a furniture factory in Nova Scotia the products were being shipped throughout Canada, nearly one-half to the area west of Winnipeg and a portion to Newfoundland. This factory was not located on the main line of a through railway. In Prince Edward Island a machine shop employing about 100 men, was turning out gasoline engines, one-half being shipped west of Winnipeg. In New Brunswick a Foundry and Stove Works was doing a local trade and also supplying its output throughout the Northwest. At a comparatively small place in the Province of Quebec four prosperous industries, all of which had grown up within the last even or eight years, were shipping furniture, chairs, iron bedsteads and clothing to distant places, in each case about half to points west of Winnipeg. In a score of the smaller cities or towns in the Province of Ontario, similar activities and conditions prevailed. The cases cited may be regarded as typical and not exceptional.

While the industrial development of Canada has been going on in a recognized and prodigious way in the large cities there has been a concurrent development in the smaller places. In these latter, particularly, the interests of the surrounding rural population, through its surplus of workers and through business and social intercourse, are tied up closely with the industrial progress of the towns.

BETTER TRAINING NEEDED.

In the building trades the most notable feature of the new structures, small and large, is the increasing attention given to provisions for the health

and comfort of the occupants. In the realization of beauty of exteriors, the progress is slow and meagre. A very large proportion of the skilled workmen received their training before they came to Canada.

Adequate training for the young and appropriate instruction, under opportunities suited to the conditions, are needed and wanted everywhere for all industrial workers and industries.

Making homes is much more than building houses and providing furniture, food, clothing and things. It is creating a temple, not made with hands, as a place of culture for the best in human life.

Teaching and training the young is much more than instructing them in the arts of reading, writing and reckoning—those flexible useful tools of the intellect. Much of the time of the school has been consumed in these tasks; but one already sees in Canada the dawn of a happier day when those arts will be acquired joyfully by directed educational play, instead of painfully, reluctantly and with difficulty as separate school subjects. Then a larger portion of the time and efforts of the teachers may be devoted to caring for the health and the habits and the standards of the pupils while watching and directing the development of their powers of body, mind and spirit.

SECTION 2: MEANS OF DEVELOPMENT.

CANADA IS BEHIND THE TIMES.

Until recently Canada was an interested and debating spectator of the movements for industrial efficiency. The training of young workers to deftness in manipulation and technique, and to an understanding of the principles and sciences which lie at the base of all trades and industries, was not provided for in the courses. When manufactured goods were wanted in increasing quantities and variety, and towns and cities were growing by leaps and bounds, it was discovered that there had been practically no organization of means for preparing the hundreds of thousands of young people to become the best qualified artisans, farmers and housekeepers in the world. The country's growing wealth was ample for the cost; but the educational work was becoming bookish in the extreme, and, worse than that, was developing into school systems that had few points of contact with or relation to industrial, agricultural, or housekeeping life. When boys and girls grew restless at prolonged book work, few schools provided anything in the way of tools, materials or time for "fads", as manual training, nature study, school gardens and housekeeping subjects were called. The deep of the ages in human life was calling to their complex instincts and aptitudes, but the schools turned a dull ear, and most of the boys left as soon as they could.

THE WAY OF NATIONAL PROGRESS.

Further advances are to be looked for through such means as these: First, those which lead young people to the achievement of joy through the processes

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of labor as distinguished from its wages or other rewards. Secondly, those which produce the pleasure of working together for some end believed to be good for all. Pupils and students may work themselves into industrial and social efficiency by co-operating in productive labor, as well as play themselves into ability by means of team games. Both together are better than twice as much of either alone. Thirdly, those which yield gladness through creative, constructive, conserving work whereby each individual strives to give expression to his own concepts of utility and beauty in concrete things as well as in words and other symbols.

HERITAGE OF LIBERTY, JUSTICE, INTELLIGENCE.

The best that Canada has inherited is the quality of her life. The more immediate ancestors of the present generation loved liberty, cherished justice, and prized intelligence. These they had won by courage, by struggle, by patience and by privation. They left them to be improved by education.

All life is an unceasing struggle. The point is to choose the right objects and means. In the past Canada has been winning all along the line, with an occasional setback. Her warfare is ever against ignorance, helplessness, poverty, disease, vice and ill-wills. Industrial and technical education is to train individuals for that warfare. Its endeavours are most successful when the experiences, which it provides for each individual, are in themselves a vital part of the hard campaign. It must ever vary its strategy and tactics and weapons, as the field of operations is moved forward. The need of the times is education to qualify all to achieve satisfaction through labor and service and good-will.

THE STATE AND THE INDIVIDUAL.

The interest of the State, as such, is that the individuals who compose it should be healthy, intelligent, capable, animated by goodwill towards their fellows, and that they should be able and willing to fill their places in the community as citizens discharging their duties and preserving their rights, as individuals in the economy of life, and as earners contributing to the material prosperity of the State.

The problem of finding an occupation suitable to the personality of the individual, and of preparing the individual to follow it with satisfaction and with benefit to the community, is ever present and becoming more complex and difficult.

So far as the individual is concerned, education is required for the preservation of health, the development of powers, the increase of knowledge, the maintenance of justice and liberty, and the strengthening of desire and will-energy to give effect in everyday life to the concepts of duty, truth, beauty and goodness.

Moreover, individuals require education to enable them to provide as workers what is requisite for the sustenance of life and the improvement of its conditions

for themselves and those dependent upon them. They require education as contributing earners so that their labor will provide satisfactory returns for themselves and also contribute to the advancement and prosperity of the State. They require education as members of society, as citizens in a community, and as members of the race. Otherwise advancement would cease, and progress would not be in the direction which the best men and women of all time have indicated as being desirable and right.

EDUCATION THROUGH WORKING.

So long as the homes and the occupations of the grown people gave the children an opportunity to participate actively in carrying on the work of the community, the instruction and teaching in the schools completed what was required for the all-round development of their ability. Until recent years opportunities for young people to participate in labor, such as grown people follow, were found in the homes and other places of work outside of school hours and school premises. Owing to the great changes during the last twenty or thirty years in the way in which the work of those who live in towns and cities is carried on, and the altered conditions of housekeeping and living, the children have less and less part in the work of the adult population, and less and less opportunity to learn by sharing in it. In consequence it has become evident that some other means must be taken to conserve in children and young people the love of work through participation in it, and to develop ability to do it well with happiness.

THE PROCESSES OF EDUCATION.

Clearer insights into the character and mode of growth of the bodies and minds of children and young people, as well as a recognition of the need of training for occupations, have led to changed conceptions of the kind of education the schools should provide. While the education which was chiefly from books and concerned with theories and principles without actual practice or experience in the management of self, or the makings of things, or the control of affairs, served well as a preliminary education for those who were to take a college course and follow the learned professions or lead lives of leisure, it did not meet the needs of the great body of pupils who went directly into earning a livelihood by means of active bodily labor.

The opinion prevails more and more that education has two main functions which are not separable—the social and the biological. One has to do with qualifying the individual for meeting the social relations and economic obligations, and the other with developing the individual to the extent of his capacities and powers.

The processes of education are made up of acts and actions, controlled by intelligent purpose to bring about series of experiences which result in the growth of power, capacity and refinement of thinking, feeling, playing, working and living. The quality of intelligence and the extent of its control determine the

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direction of development, while the degree of intensity in purpose sets the pace for the rate of progression. All real education comes through series of experiences in the individual learner, and some kind of it goes on as long as life and growth continue. The instruction given by a teacher and the information furnished by books contribute to the ideas and to the kinds of experience; but the experience of the learner is the process whereby his education is advanced.

METHODS TO INCLUDE BODILY TOIL.

The aims of education have determined the kinds of experiences which have been provided for during the years of formal education in courses of study and training. The systems of education have depended upon the political and social conditions of the time and of the people. In all countries they have been a growth and evolution out of previous conditions, usually to meet the recognized needs, ambitions and aspirations of the individual and of the times; and, to a less extent, to prepare for conditions expected or hoped for by the individual, by society or by educational leaders. The methods of education have grown out of the experiences of the past, and they have been modified by the specific object aimed at by the teacher or school in a particular field or area of education. In their essence they consist in the application of what are believed at the time to be the principles of causes and effects.

It must not be forgotten that invigorating toil—invigorating bodily toil—is the only known road to health, strength and happiness. Agri-culture, industrial culture, technical culture, liberal culture, have no origin in idleness, indolence or sloth, which make for the corrosion of all the vigors of the physical, mental and moral nature. Culture is not always gained by the learning of languages, living or dead, or the acquisition of knowledge, scientific, mathematical or historical. It is the residuum in character—in body, in mind and in spirit—after every completed cycle of an educational experience.

THE STEPS IN AN EDUCATIONAL EXPERIENCE.

Put into the language of everyday life, the main steps in every cycle of an educational experience are: observing, reflecting upon ideas, planning towards expression, feeling and managing into some form of expression. It appears that the closer in point of time the steps are taken together, the greater the growth of power and the surer the formation of habits. Frequency of experience is what forms habits, and not repetitions of instructions or information. In so far as these experiences can have close relation to practical activities, so much the better for the culture of the student. Such activities are those of body, mind and spirit in the individual's capacity as an earner, a member of society, and a trustee in the scheme of life.

The Consultative Committee of the Board of Education for England says:—

Throughout English education (and the same course of thought may be observed in America and in other countries), efforts are now being made to combine these two ideals of general and industrial training. Handwork of all kinds is steadily, though slowly, forming a

larger part of the Elementary Day School course. Civic and general instruction is recognized as having a claim to a more important place in courses of technical education.

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A combination of practical and general instruction for boys and girls, during adolescence, is of great value to the individual and to the community.

GENERAL EDUCATION CROWNED BY INDUSTRIAL TRAINING.

Industrial Training and Technical Education serve to supplement general education, and give to it a finishing course of experiences with special reference to the requirements of workers in industries, agriculture, housekeeping, commerce, transportation, mining and other occupations. They are means whereby the individual, the family, the community and the nation seek to develop the powers of the individuals for work, to prepare themselves to meet the conditions of working life, to alter these conditions in directions which seem desirable, and to conserve what is esteemed to be worth while out of the past in knowledge, customs, methods, institutions, standards and ideals.

From actual practice comes skill in the gentle art of living happily together while working for some good end. Alike in school and college, on the farm and in the factory, in shop and office, in home duties and public affairs, that kind of life develops a quick sense of responsibility, it establishes good standards close by which are understood, it nourishes conscience and strengthens the will-energy towards further culture, better work and happier living.

SECTION 3: CAUSES OF GERMANY'S PROGRESS.

GERMANY'S OBJECTS AND METHODS.

In the case of Germany, the problem which presented itself about forty years ago was the creation of a true national spirit, based upon ideals common to the whole people. The problem was how to bring about efficiency at home, with national solidarity through the ability and power of the individuals, animated by some common purpose which bound them together.

At first Germany organized the entire system of educational institutions in the several States of the Empire with a view to developing all the powers of the individual. That led to friendly struggle between individuals in the one State for place, positions and possessions. It was first self-preservation, then self-improvement, and then later on the conquering of the place in the world's market by the excellence and cheapness of the products to be sent to them.

Many other factors enter into the means whereby the industrial and commercial development of Germany has been brought about. Without describing these in detail, they may be mentioned as the extension and improvements of railways, improvement of canals and rivers, the opening up of ports, the creation and development of a merchant marine, all of which led not merely to the increase of facilities for communication and transportation, but also to a reduc-

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tion in the cost of transportation. Another factor was the better utilization of natural resources by the application of scientific methods. And third, there was legislation protecting and stimulating industrial enterprises. Along with these there was the conservation and development of the individual's power by means of industrial training and technical schools. Thus technical education has taken a principal part in the development of Germany. It has been concurrent with other large movements, and they have all fitted into each other. It is practically impossible to do more than indicate some of the causes for the marvellous development within the nation during the present generation.

GERMANY FROM THE ENGLISH POINT OF VIEW.

Dr. Reynolds, Director of the City of Manchester Institute of Technology, said in his address to the Imperial Education Conference at London, in 1911:—

Whether we are "tired of Germany as a model" or not, she is too formidable an antagonist in the sphere of world politics, in the domain of high learning, in the field of manufacturing industry, and in the world's market, for us to ignore her rapid advance, or to be indifferent as to the cause.

Within a generation of living men her sun has risen above the horizon, and has blazoned forth, as it is rising towards the zenith, with a splendor that compels our admiration, even though it may fill us with alarm.

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In short, it was to education, thorough and far-reaching, that these wise counsellors looked for the means whereby their nation should regain and enhance its position in Europe and the world, and the faith and hope which inspired them has, as we all know only too well, been more than justified.

Mr. W. Harbutt Dawson, who is recognized as an authority on Germany and German conditions, in his book on the "Evolution of Modern Germany" mentions some of the reasons why, in his opinion, Germany has succeeded as far as she has done. His conclusions are:—

1. Germans work harder and for a longer number of hours.
2. The Germans regard commerce and industry as a science and an art, whereas elsewhere these are often counted as matters of rule-of-thumb.
3. The German standard of living is simple and less pretentious than the English or American, and the German manufacturer is content with less profit than would satisfy a British, American or Canadian manufacturer.
4. The German pays smaller salaries and lower wages; but German workmen enjoy substantial advantages in three great insurance benefits—sickness, accident and old age. The low wages and the long hours of Germany are being gradually changed, the wages becoming higher and the hours becoming shorter.
5. In general, the persistent endeavor of the Germans to come to the front has been supported by a skilful and even masterly adaptation of means to ends.

Where the German merchant as well as the manufacturer outrivals his competitors, his success may be attributed to one or other of three reasons:

- (a) The lower price of his goods.
- (b) Their superior or at least more serviceable or attractive character, and
- (c) The more efficient arrangement which he makes for reaching and attracting purchasers.

Mr. Barker North, President of the British Institution of Teachers in Technical Institutions, makes the following statement:—

The great German industrial concerns, knowing the value of the scientific expert, will wait for years for the final results of researches, which they realize will ultimately revolutionize an industry or may provide entirely new industries. Germany has developed a scheme of practical education of the masses which will provide her industries with an army of well-trained workers, and at the same time she has developed to the highest pitch the scientific training of original technologists. It may be that we require more Dreadnoughts, but no number of battle-ships will prevent our being left far behind in the race of industrial progress if we continue to rest self-satisfied on the laurels of the past.

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AMERICAN OPINIONS OF GERMANY.

Mr. Edwin G. Cooley states in his "Vocational Education in Europe":—

The German has therefore re-organized his entire system of educational institutions, with a view to developing all his powers, not only for the struggle between individuals in the German State, but in the struggle for supremacy in the industrial and commercial fields of the world. It was then not merely the motive of the subdual that led to this movement, but self-preservation, as in matters of this sort there is no such thing as standing still. Germany was compelled to move on to new conquests after the completion of the war with France, and she made use of German thoroughness in her campaign for industrial supremacy.

Some of the reasons for Germany's growth in industry and commerce are presented by Mr. Harlow Stafford Person in his prize essay on Industrial Education. They are substantially as follows:—

Industrial Germany as we know it has developed mainly within the last twenty-five years. Germany has achieved what she has done not because of any extraordinary resources, nor merely because of her rapidly increasing population. Two factors are worthy of special mention. One of these is the quality acquired through centuries of intensive labor, the capacity for taking pains; the second is the paternalistic state. The paternalism of the German Empire, applied to the creation of industrial efficiency, has secured wonderful results from the limited natural resources of the Empire. The creation of this powerful industrial state has been due not to superior natural resources, but to deliberate effort in the face of relatively inferior resources. Germany relies upon her advantage of having a highly developed system of technical education. The Germans themselves attribute their accomplishment of the last twenty-five years to their system of industrial education.

AN EMINENT GERMAN'S EXPLANATION.

While popular opinion attributes the rate and extent of the industrial and commercial progress of Germany to its systems of technical education, it is wholly impossible to assign to any one definite cause the marvellous development within the nation during the present generation. Dr. Kerschensteiner, the administrative head of education in Munich, may be regarded as one of the most competent authorities on this question. He attributes the lion's share in the rise of German industry and commerce to other causes. He puts first the German character with its tendency to reflection, its thoroughness, tenacity, and capacity for subordination. He indicates as another cause the German merchant with his flexibility, adaptability, and his zeal in the study of foreign languages and foreign conditions. He suggests that German poverty may have been a third cause. Before 1870 Germany was a poor country. Its people were frugal, industrious, and like other poor races they had forged for themselves one of the best weapons in the struggle in developing the faculty for doing without things, or of dispensing with things. He wonders whether the riches which have come to the empire in one generation will bring weakness rather than increased strength. To quote his words:

The Germany of to-day has grown rich within one generation. It remains to be seen if it has strength enough in spite of this wealth, to work and struggle in the sweat of its brow. History generally teaches the contrary. Yet our over-population and the tension existing in all other civilized states may perhaps supply us with the same motives we formerly owed to poverty.

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One factor, however, has been of eminent importance in the development of German industry. That is the scientific training of German Engineers; in other words the serious scientific spirit that rules in our German technical universities.

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And among other economic causes it is certainly this spirit of unselfishness, of devotion to an ideal aim, that has led our technical officers of industry to victory. We thus arrive at the conclusion: that real scientific culture in union with that discipline of character which teaches thoroughness and devotion to aims lying outside of ourselves are of no less importance for the industrial development of a country than technical training.

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Among the answers given by German manufacturers to the inquiry of the German Committee for Technical Schools there is one which lays its finger on the essential point of all education:

"A far more important problem for the machine-builders' schools than the exact amount of instruction in the single branches is to develop the character and intelligence of the pupils. Teaching suited to the future calling must be regarded merely as a means to this end. We shall always be able to work successfully with men of character and intelligence, whether their schooling has led them further in one branch or another. Knowledge learned at school can never be more than the rudiments of knowledge gained by experience in special work."

This lesson which a German machine-builder gives the committee must be taken to heart by the German day trade schools and all the trade schools of the world. Technical instruction must be regarded in the first place as a means of character-training, and it must be supplemented by other forms of instruction with a view to making it as many-sided as possible. In the life of great economic groups and of nations there are moments, and they are the critical moments, in which neither knowledge nor skill, but character, decides the day—character that has learned to regard its own egoistic interests as of no account when their sacrifice is demanded by the welfare of the community to which we belong, the welfare of the service that we have chosen, the welfare of the subordinates intrusted to our care.

SECTION 4: GENERAL SUMMARY.

CHARACTER AND CAPABLE MANAGEMENT.

Experience has made it evident that technical education and industrial training which prepare an individual to earn a living and to contribute to the prosperity of the State by means of productive, constructive and conserving labor can also be the means of culture for his mind and of development of his spirit. There need be no separation between the training which qualifies young persons to become good workmen or good workwomen and the education which broadens the sympathies and enlarges the interests through literature, history, science, art and religion.

The organization of an efficient system of industrial training and technical education and keeping it going afterwards are questions of men and women and management. The progress does not depend upon having conditions without drawbacks and difficulties. Every country for itself and place for itself must depend upon men and women who have fine initiative, sound intelligence, and plenty of wholesome persevering diligence.

Capable management stands out supreme above natural advantages. To observe carefully, to think clearly and consecutively, to learn from others, and then to put all together with the least possible waste—that is the immediate task before Canadians.

THE NATIONAL DEPENDS ON THE INDIVIDUAL.

Every national problem can be dealt with to the greatest advantage by intelligent and capable men and women. Intelligence and ability are fruits of education limited in extent according to the measure of inherited capacity, personal diligence and accessibility of opportunities. Training and instruction in some form are the chief means for conserving and developing the powers, capacities and characters of individuals.

As the powers and influence of individuals in matters of government—Local, Provincial and Dominion—become greater, it becomes correspondingly necessary that each and all should have the kind and amount of education which will enable and cause them to live and work better because of it than if they had not had it.

SOME CONCLUSIONS.

In consequence it appears to the Commission that Industrial Training and Technical Education should be provided:—

(1) In order that the interest of boys and girls in their own training and instruction might be increased and an understanding of their relation to working and living might be clearer to themselves from twelve years of age onwards.

(2) In order that the period of authoritative supervision, and of organized education to the extent of at least half a day per week, should be prolonged during adolescence, and that boys and girls should themselves desire those advantages until the age of seventeen or eighteen years.

(3) In order that all might become qualified, to the full extent of their capacities, to fill their places as individuals, as contributing earners, as citizens and as members of the race.

(4) In order that the nation as a whole might be more intelligent, capable and prosperous, and more united in its efforts to meet national problems and solve them wisely as they come.

The Commission holds that the large inclusive aim of Canada is that her people shall be great in character and ability, even great enough to match the matchless heritage that has come to her in blood and ideals, in possessions and institutions, in opportunities and obligations. The greatness of her composite races will come through the perfecting of the finest of all fine arts—the fine art of living happily and prosperously together WHILE WORKING WITH INTELLIGENT SKILL AND UNALTERING WILL for ends believed to be for the common good. Industrial Training and Technical Education are among the means to that end.

CHAPTER V: INDUSTRIAL TRAINING AND TECHNICAL EDUCATION IN RELATION TO THE NEEDS, DUTIES AND RIGHTS OF INDIVIDUALS.

SECTION I: THE INDIVIDUAL IN CIVILIZATION.

Under modern conditions the term civilization is commonly used as a bland, omnibus word to indicate the forms of organization and effort employed for the achievement of the main aims and ideals which animate and dominate a people for the time being. At present the objects are obtrusively commercial and industrial. The forms themselves are ever changing, while the inner force which uses them persists. The inner power of the people expresses itself progressively in human qualities and social and economic conditions.

In the struggle of modern industry to produce goods cheaply in order to make profits, three elements are of importance—raw materials, labor-saving machinery and organization. These three receive so much attention that sometimes the conditions of and results upon the individual workers are entirely lost sight of. The most important asset in any State is the value of the individual citizens themselves. While the conservation of natural resources and the promotion of industries are important and the development of trade has possibilities of benefit, the conservation of life and ability in the individual workers is supreme. Next to that comes the provision for conservation of opportunity for satisfactory employment.

IMPERFECTLY OR IMPROPERLY EMPLOYED.

Already in Canada there have been times when want of employment to even willing workers has been keenly felt; and but little care has been taken to guard against the continuation of conditions under which great numbers are imperfectly employed. Such are those who are employed at occupations for which they are not qualified or for which they have no taste. Little has been done to correct conditions which permit and encourage considerable numbers to be improperly employed. Such are those whose time and ability are devoted almost entirely to acquiring control over property, instead of doing something which contributes to the sum total of wealth or the welfare of the people in themselves.

THE HOPE OF CIVILIZATION.

Fundamentally and permanently the organization and effort of civilization include:

(1) Whatever has been planned for, hoped for or undertaken to keep the individual and the family going on towards the realization of justice, liberty and happiness.

(2) Whatever has been planned or undertaken to add to the reserves of wealth in material things and in the uses of the materials and forces of nature.

In this sense wealth is represented by such things as buildings, furniture, clothing, foods, and materials for these; roads, sidewalks, railways, steamships and other means of transportation and conveyance; objects and instruments of science and art; tools and machinery of all kinds and products from them; warehouses, shops, telegraphs, telephones; domestic animals, improvements to agriculture, fisheries, mining and forestry; improvements in the utilization of fuels, water powers and waterways; water and sewerage systems and other public utilities.

(3) Whatever makes for the enlargement of friendships and the increase of friends.

(4) Whatever makes for the improvement of capacities, knowledge and powers of individuals for accomplishment, achievement and attainment in body, mind and spirit.

(5) Whatever helps towards making opportunities for well-being, through labor, leisure and living, more accessible and less avoidable.

(6) Whatever makes for the formation of good habits, the maintenance of high standards of conduct and character, and the cherishing and following of high ideals of duty.

(7) Whatever makes for the protection of children and the betterment of the quality of life.

(8) In general, whatever ministers to progress through service which combats ignorance, lack of ability, poverty, disease, vice and ill-wills.

PART PLAYED BY INDUSTRY.

In each of the foregoing spheres of desire and action, industry plays an important part. It has always done so. The dominant industrial activities, which occupy the people for the time being, set bounds to attainment in each of the spheres outlined. Personal human values and opportunities are the only terms in which the progress of civilization can be adequately measured, and these can be immensely enhanced by the union of education and industry.

Where the individual provides for his own primary wants in the way of food, clothing, shelter, tools and weapons wholly by his own labor, he requires the kind of training which qualifies him to do all the work involved. When he devotes himself to the production of more of one kind of commodity than he wants for his own sustenance and that of his family, and desires to exchange it

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for other things, that marks the beginning of specialized industry and commerce. During the last century the trend of development was all in the direction of such specialization, with its consequent increase in internal and international commerce.

FACTORY METHODS LIMIT DEVELOPMENT OF INDIVIDUALS.

The differentiation of the kinds of work done by individuals in their occupations has led to an almost entire change in the kind of knowledge, strength and skill required by the individual for following his particular occupation successfully. When the specialization of occupations had proceeded to great lengths the organization of the workers in factories in many of the industries and occupations was brought about. That resulted in what has been called the industrial revolution, under which the single craftsman gave way to the worker in a factory organized for the most economical production of things by the use of machinery. The application of steam power and of water power, and more recently of electrical power, to the driving of machines, and the specialization of machinery itself for the accomplishment of complicated and difficult processes of manipulation and manufacture have, in many cases, made the workman occupy only the place of a skilled attendant upon a machine. Less of personal constructive, manipulative skill is required. While deftness and quickness of movement are found essential, only a few individuals are required to understand the machine and have knowledge of all its parts and ability to correct or adjust anything that goes wrong with it.

The organization of industrial activity into factories has not affected all trades alike, although it has modified nearly all occupations known as skilled crafts. Examples of these may be named as the trades of spinning, knitting, weaving; the production of clothing; the manufacture of boots and shoes; the manufacture of instruments, utensils, vehicles and tools; woodworking for the production of furniture and parts of buildings; metal working for the production into useful forms of iron, steel, etc.; the production of cutlery and other forms of hardware; printing and the making of books; the manufacture of paper; the making of glass; sawing in lumber mills; milling; the manufacture of dyestuffs, and a hundred other forms of occupations and crafts.

Such an organization of industry as has been indicated calls for the service of a relatively small number of men with directive ability. It also gives opportunity to persons possessing control of capital or wealth to provide the material means through which the unskilled labor finds its application to meet human needs.

Where the organization of industry provides for the employment and payment of a comparatively large number of unskilled workers, whose main contribution is bodily strength to carry out simple appointed tasks requiring little skill, initiative or intelligence, the forms of education required by such persons for their occupations are few and easy to provide. As workers many of them occupy a plane hardly higher relatively than that of slaves when civilization permitted that form of ownership of life.

SECTION 2: THE PROTECTION OF EDUCATION REQUIRED.

TO PREVENT THE EXPLOITATION OF LABOR.

But such workers as free citizens and voters require education; and the State, for its protection and benefit, requires that they should be educated to enable them to discharge the duties of citizenship in a safe and satisfactory manner. The safety of the State and considerations for the welfare of the race demand that they should receive education suitable to their needs as individuals in the long chain of life, in order that it might not be debased or weakened in their hands.

In the earlier stages of civilization industry was the servant of humanity, and was always employed to meet some need of service by individuals or communities. The question thrusts itself forward now, as to whether modern organized industry is to continue as the servant of humanity, or whether it is becoming an instrument in the hands of a comparatively few individuals, whereby they seek to obtain control of wealth (the reserves) and of the means of producing more wealth, including the control of human labor. When the main object of industry ceases to be products for service, and turns to profits for the employers and undue returns on capital, the conditions and situation are full of danger.

In this connection it is worth while referring to some of the conditions which have prevailed in and through one of the textile industries. A study of the conditions under which the cotton industry in its various aspects has been developed, reveals a saddening record of human degradation along the whole trail. In the production of cotton there was the exploitation of slavery and slave labor; and on the other hand in the manufacture of the cotton in factories there was the exploitation of child labor and women labor with the long hours, the confined and debilitating air, the infernal rattle of machinery, and the whole ghastly story. The beneficent cotton plant, capable of being turned into products of beauty and use, with nothing inherent in any of the tasks of its production or manufacture which might not have ministered to the development of ability and the creation of conditions for happiness and satisfactions, has been the occasion of blight on millions of lives. The exploitation of ignorant labor has ever been an injury and a menace to wholesome civilization, while the education of labor has ministered to progress and the well-being of the workers.

COMMERCE FOLLOWS FACTORY METHODS.

Those who are occupied with the exchange of commodities in the field of commerce have found their occupation becoming organized in a manner somewhat similar to that which has prevailed in the production of manufactured articles. Whereas the shop-keeper with an assistant or two used to be the middle-

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man supplying goods to his customers, he, in many cases, has given place to the departmental store or to the huge emporium which employs a large number of sales clerks. With each clerk confined in his activities to one department, the requirements of knowledge and executive ability, while not less exacting, are less complex and comprehensive than formerly. The departmental head in commerce parallels the foreman or superintendent in the industrial factory; and, at the top, those who have directive and organizing intelligence and ability, and power to command and use wealth or capital, are like the managers or owners of industrial establishments.

In the field of transportation a similar evolution has taken place, and even large railway systems are being consolidated into still huger concerns by amalgamations or understandings. In this department there is less need and less demand for unskilled labor except in the manual labor of constructing roadbeds and work of that sort.

ORGANIZATION LACKING WHERE MOST NEEDED.

Farming is the one occupation which has lent itself least to, and seems least likely to follow, the trend of the other occupations which have been mentioned. In Canada the individual farmer in most cases combines in himself the positions of manager, foreman, superintendent, skilled workman, laborer and chore-boy. He has to know not only the systems and methods of management and the processes and operations of production, but he is required to have scientific knowledge of soils, seeds, manures, crops, animals, products, diseases, insects and influences of weather. Farming is the application of common sense—that is, of organized knowledge or science, organized wisdom and organized good-will—to all these things and to his fellows. He must have commercial knowledge and intelligence regarding markets, qualities of products, packing, transportation, etc. And he must learn to organize and co-operate with his fellow-farmers in business.

In addition to the general knowledge, outlined but not exhausted in the foregoing enumeration, if he specializes in any particular department he must have a more thorough knowledge of the principles, methods, processes and conditions which belong to it or prevail in it. For instance, if a farmer specializes in fruit growing he must know how to manage the plants which produce fruit, and to provide for the conditions under which he will be able to sell it to the greatest advantage.

In fisheries, in mining and quarrying, and in forestry, fewer changes have taken place in the conditions of production so far as the skill and knowledge of the individual worker are required for the efficient following up of his calling. But he requires the new knowledge, which is now available to him and which was inaccessible to his predecessor, of natural laws whereby he may obtain the best results from the expenditure of his labor.

FACTORIES ABSORB GIRLS AND WOMEN.

The ultimate products of the labor of women are not widely different in their nature from the products of women's work before the time of the industrial revolution. The labor of women has always been applied towards the production of the clothing of the family, the preparation of its food and the maintenance of the house and home. Since the organization of industry made it practicable to produce articles of clothing, etc., by means of machinery and organized labor, in factories at less cost than by the single worker in her home, the woman worker has been absorbed into the factory system. The withdrawal of woman from the home, in many cases, has not meant that her labor was applied to a different kind of service for the community, but to production under different conditions. That applies in perhaps greater measure to the production of the various forms of clothing, ornaments and furnishing of the homes than to the preparation of foods. In this connection also it is to be remembered that the preparation of foods for consumption in modern cities calls for a different measure and kind of cooking. Few families of wage earners now purchase flour and make their own bread. Cooked meats, cooked fruits, "ready mades" of all sorts are purchased and used, whereas formerly the raw materials were produced or products were bought and prepared for use by the woman or women of the house.

The more expensive scale of living has brought about demands for scores of products and things which were almost unknown in the homes of the same class of workers a generation ago. Women and girls go into factories for the production of these things, such as garments, ornaments, confectionery, buttons, boxes and dozens of small articles of common use. Women are employed also in increasing numbers in sales shops and in offices in connection with business administration, correspondence, and the keeping of records.

WOMEN WORKERS NEED SPECIAL TRAINING.

To enable the women to perform these several gainful occupations with success, that is, with satisfaction to their employers and satisfaction and contentment to themselves, they require special knowledge and special training. If these are not obtained, the effectiveness of the worker and the results of her work are to that extent lessened.

The great fundamental occupations of housekeeping and homemaking are still almost exclusively in the hands of women. Without question they have natural aptitude, and most of them natural liking, taste and preference for employment in these capacities. It is none the less highly important that they should be enabled to acquire the knowledge necessary to meet modern conditions and to obtain experience in early life which will enable them to develop adequate ability without waste, disappointment and injury to themselves and others.

It seems an obvious obligation and privilege upon all the people to ensure that the girls will have opportunities, assistance and guidance to enable them to become qualified for that occupation which, more than any other, is necessary

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to the continuous well-being, strength, health, progress and happiness of the whole people. While food, raiment and shelter are not the main objects of life, life is more worth living to the individual and the community where the houses and homes are kept and managed by women who have been educated in such a way as to enable them to make the best use of the native talent which they possess.

SECTION 3: MORE SERVICE REQUIRED FROM THE SCHOOL.

LARGER DUTIES OF THE SCHOOL.

The evolution of the school has been as notable as that of any other institution. The elementary school, which came in first to supplement the training and instruction which the boy and girl received in helping their parents, has been left to accomplish nearly the whole task from six to fourteen. The demand is everywhere insistent that the schools shall meet the larger duties which are now thrown upon them by the changed social and industrial conditions.

The following extracts are taken from a Report by the Consultative Committee of the Board of Education of England.

The desirability of giving to adolescents a better EDUCATIONAL EQUIPMENT for their future duties.

So far as boys are concerned, therefore, the Committee have no hesitation in saying that, under modern industrial conditions, the majority are not sufficiently equipped for the battle of life when they leave school. Nor have they, in many trades, any reasonable opportunities of obtaining that necessary equipment during the course of their work.

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As regards the general question of the educational equipment of adolescents, three questions may rightly be asked of those who advocate a great extension of educational opportunity for the rank and file of the younger workpeople in this country. First, will the education which it is proposed to give make the young people better off pecuniarily when then come to manhood and womanhood? Second, will it give them happier lives? Third, will the outlay from public funds which the proposed educational changes must involve be repaid, fully though indirectly, to the nation, through the increased economic efficiency of the community?

(1) Does Capital, by promoting popular education, secure skilled service at a cheaper rate, retaining for itself most of the advantage which it would otherwise have had to share with its highly paid employees—highly paid because they could command the high rent of scarce ability?

Posts of responsibility are not predetermined in number by some iron law of markets. An increasing stock of practical ability in a nation enlarges the range of its economic activities and rapidly adds, through all the gradations of directive responsibility, to the number of well-remunerated posts, which could never have existed if men had not been forthcoming to fill them.

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(2) A more difficult issue is raised by the question whether increased opportunities of education enhance the happiness of the mass of the people. The point was raised by one of the Committee's witnesses, and they feel they ought not to ignore it. In their opinion, all turns upon what is meant by happiness. Education may well destroy the easy-going comfort of a thoughtless mind. It may impart a desire for an intellectual or artistic occupation which the individual has not the means or opportunity of entering. It may stimulate ambitions which cannot be realised. It may increase a man's sensitiveness to the hardships and limitations of his lot. Like all great changes, it brings evil with it as well as good. But few would identify true happiness with obtuseness of feeling, coarseness of sympathy and torpor of mind. The right kind of education, working upon a character which is susceptible to its power, gives a man adaptability, self-reliance, balance of thought, sobriety of judgment. It may raise him above self-interest and beyond the

reach of individual disappointment to a point of view from which he sees the whole of which his individual life is but a part, and may bring him to the state of mind in which he finds a real happiness in work well done.

(3) The third question is whether the increased economic efficiency of the community will repay to the nation as a whole the outlay involved in great extensions of educational opportunity to the masses of the people. From a purely economic point of view, this question may be answered in the affirmative, provided that the education is at once practical and humanising. The enhanced economic power of the community increases the production of wealth and the efficiency of its thrifty distribution. It will make possible a more scientific distribution of labour, a fairer adjustment of tasks, a more prudent anticipation of the future. It will lessen waste and, through the avoidance of waste, may enormously increase the fund of wealth available for distribution among the community.

What is true of the material gain which may result from improved education is true also of the moral gain. The temper, the outlook, the recreations, the ideals of a nation may be so refined and raised by the right kind of training as to secure for the mass of the people a more choiceworthy life.

ADAPTATION TO NEW CONDITIONS.

The following extracts are taken from the Report of a Committee of the National Education Association of the United States on *the Place of Industries in Public Education*.

Much of the current discussion of reform movements of various kinds is vitiated because adequate attention is not paid to the fundamental forces which are producing the visible social changes.

In the first instance the social environment, including the sum total of influences which bear upon the life of the individual, has been enlarged. People, intelligence, goods, now come from or go to distant parts of the earth quickly, regularly, and surely. The world of the twentieth century is one vast neighborhood; no dark, unknown continents remain upon the map. In the second place, specialization of industry has tended to confine the life and activity of the vast majority of workers of all grades within very narrow grooves. While modern methods of communication and transportation, world markets and the multiplicity of industrial products offer opportunities to broaden the mental horizon and tend to differentiate the demand of each individual for necessities, comforts, and luxuries, occupations have been specialized and subdivided until the life of the individual is cramped. Earlier forms of industry gave the worker a relatively broad outlook, and did not force him into a rigid routine. Our daily work and home environment usually tend under modern conditions to astigmatize our view at the time when democracy and world unity should thrive. This is the grim and forbidding paradox of modern industrial life.

The factory system, for example, is an economical and labor-saving device; but it has certain undesirable features such as extreme specialization and the employment of young children. How can the system be preserved and the danger reduced to a minimum? is our problem. It is not: How can the system be abolished? The task is not the preservation of the old intact; but it is the adaptation of social, political, ethical, and educational ideals and methods to the unique conditions produced by industrial advance.

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The greatest wealth of a modern nation is bound up in its citizenship; and its citizenship, thanks to the "industrial factor" in modern life, is chiefly a social product. The presentation of abstract educational ideals and values without due regard for the conditions of home, shop, and leisure-hour environment, is a futile process. The great problem of the present, the one which towers above all others, is to universalize opportunity for decent health and comfortable living not for a few but for all; it is to give to each and every child in this great and rich land of ours the heritage of a child—decent home surroundings, sufficient and proper food, opportunity to play, and a chance to use hand and brain in some form of constructive work. This is the social, political, and educational problem of the age; and the peculiar form in which it is presented to the present generation is due to industrial advance. The key to its solution can be found only by him who searches by way of the path of industrial evolution. The "industrial factor" is the chief factor in modern social, political, and educational problems; because industry is the determining factor in fixing the conditions of living, working, playing, associating, resting.

PERSONAL WELFARE AND STATE PROSPERITY.

In view of these and similar considerations it becomes more and more evident that education must have a vocational aim and result if the industrial

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activities of the people are to be of benefit to all the individuals and to the State which they constitute. It must be kept in mind that the first and chief object of Industrial Training and Technical Education must be the personal welfare of the individuals who are to participate in it; second, the prosperity and strength of the State; and, third, the advancement and improvement of Industry as such, and that only as consistent with and subordinate to the other two.

In the organization of this form of education, the attempt must be made to meet all the needs of all the people, with care that none shall be debased by the occupations for which they are prepared, and none shall be debarred from earning satisfaction, as well as satisfactory wages, from labor.

SOME CONCLUSIONS.

In the opinion of the Commission it is important,—

(1) That workers in factories whose main task is to attend or operate machines should receive instruction and training which would develop some all-round power and skill, widen their knowledge and increase their interests beyond the routine of automatic operations. By such means industrial activity would minister to the development of human life instead of subordinating it to the gain of profits without concern for the well-being and happiness of the individual workers.

(2) That such training should be provided as will conserve and develop occupations wherein skilled handicraft is required,—this for the sake of the workers as well as for the quality and character of products of certain kinds.

(3) That the interests of the rural population should be conserved and promoted as far as possible by Industrial Training and Technical Education suitable to the needs of its workers.

(4) That the needs of girls and women for organized instruction and training in the elements of the sciences and arts, which underlie successful house-keeping and home-making under modern industrial conditions, should be recognized and provided for. The housekeepers and the homemakers are always the mainstay of advancing civilization.

(5) That increasing attention should be given to opportunities, which now exist or which may be provided, for the conservation of life and health and for the development of human powers to the end that individuals generally may attain happiness, prosperity and contentment through intelligent labor in Canada.

CHAPTER VI: ORGANIZATION AND ADMINISTRATION OF INDUSTRIAL TRAINING AND TECHNICAL EDUCATION.

INTRODUCTORY.

Systems of education and courses of study have come into existence without much clear recognition of their character by the people as a whole. The character and position of the courses, and even of the subjects as logically related to the systems, have often been such as to obscure the pupil and his needs. However, the trend of progress in recent years has been in the direction of reversing that situation, and additions, extensions and enlargements of courses have been made until they have lost their organic unity for the dual purpose of training the powers of the pupil and imparting the necessary amount of useful and therefore cultural knowledge.

The greatest deficiency in recent years has been due to changing conditions under which occupations are followed, and which have in large measure deprived many young people of opportunities and means of being trained by participating in them. The system which included apprenticeship, or similar training with its accompanying discipline, provided a fair all-round training when supplemented by the usual intellectual studies of the school.

The question now is, since that opportunity of participating in occupations as apprentices no longer exists in the form in which it used to serve the young people, shall the schools be organized to meet the needs which were formerly met in the other way? In other words, shall public schools undertake not merely to give general education and Pre-vocational Education up to 14 years of age, but shall they also supplement the experience of those who have begun to earn their living at 14 in such a way that their ability as workers will be increased, their attitude towards life kept wholesome, and their habits of body and mind formed so as to ensure continued education. Another way of putting the question is, shall the schools continue to provide vocational education only or chiefly for those who are to follow professional occupations?

The chief reasons why pupils leave school at an early age, or before receiving a Secondary School education, are the limited resources of the parents or the dissatisfaction of the parent or the child with what they consider to be the unpractical and unprofitable work at the school.

One of the fundamental objects of Industrial and Technical Education is to develop as far as practicable the working capacity of the pupil and, at the same time, the experience of joy or satisfaction from the processes of the work itself. When education does not accomplish that, the schools do not promote industrial efficiency to the full extent; and in consequence young people enter upon their life's work without a right understanding of work itself and are likely

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to miss pleasure and satisfaction from doing it. The way to make men and women like their work is to help them to understand it and do it well.

The ideal or perfect system would provide for the participation in the opportunities for education of all individuals according to their ability, the occupation they are to follow, and the place they are to occupy in the State.

The nation, as well as the family and the individual, are concerned on the economic side. A well educated, that is a well informed and well trained, individual can produce more for himself and his family and at the same time contribute more in an economic sense to the community and the state. What is true in the economic sense is true also in a social sense and in respect to citizenship.

The great industries, and to a less extent the smaller trades, depend more and more upon the successful application of science and scientific methods to manufacturing processes. Improved methods of transportation are bringing all countries closer and placing them nearer the same level of opportunity in the use of natural resources. Improved tools and labor-saving machinery are rendering mere manual skill of less importance than formerly. What counts for most is dexterity, scientific knowledge and the skilful application of it to the needs of the industry by men and women of good character.

Apart from, and still contained within the interests of the State and the industries, the needs of the individual must be considered. Since the largest part of the life and strength of each individual will be taken up with the occupation whereby he earns a living for himself and his family, it is important that his education should prepare him to follow his trade or calling in such a way that he will derive not only satisfactory compensation in the form of wages, products or profits from his labors, but that he will have satisfaction and happiness in the actual doing of his work for its own sake. It is still more important that education should widen his interests and broaden his sympathies so that the chief object of work, which is to make life itself worth while, shall be attained in part through the experiences of the means whereby he makes his living.

An adequate system of Industrial Training and Technical Education should fit the social and economic conditions of the time in such a way that each individual would have the benefit of opportunity and influences for educational growth so long as there was growth of powers of body, mind or spirit. This does not imply that there should be, for most boys and girls after 14, much time spent in formal education in the Elementary or Secondary School. The Vocational School should enable the individual to go on with his education through its courses, through contact with his fellows, through the experience of his work, through the use of books, and through other means put within his reach under the existing organization of society.

SECTION 1: THE PRACTICE IN DIFFERENT COUNTRIES.

The organization of this kind of education has followed different courses in different countries. Sometimes it has been initiated by those in charge of the Government and in a measure imposed upon the people; in other cases it

appears to have arisen from the efforts of the people themselves in the several communities.

The control of education rests with different authorities in different countries and communities. In most cases the Central Authority for the State indicates the general direction in which education should be carried on, establishes standards for the training and qualification of teachers in schools which receive support from the public funds, whether State or local, and usually by means of advisory publications, inspection and the payment of additional grants for extra good work, endeavors to keep the education up to certain standards of efficiency.

The local community, through some means provided for by law, such as a municipal authority, school board, or corporation, has control of the institutions, the engagement of teachers and the general work of the school. Usually the Local Authority is allowed considerable latitude as to the Courses of Study and the manner in which they are to be followed. It also has full control or some control as to the qualifications required for the admission of pupils. The Local Authority is usually charged with the responsibility of providing buildings and equipment. Ordinarily these must conform to standards and regulations, and in some cases the Central Government provides part of the cost.

TO LEARN BUT NOT TO COPY.

The Commission does not consider that the form of organization, or the practice in administration, in any other country can be adopted in full with advantage in Canada. Differences in the traditions and organization of education and of society itself have to be taken into consideration.

The extended reports of the inquiry in the several countries reveal some general principles which are common to all their systems and methods. The Commission presents a statement of the means whereby these principles, which have been found suitable and beneficial, can be applied most advantageously to Canada in Chapter VII: A Dominion Development Policy.

The organization and administration in France is suggestive and instructive particularly in respect to the system of supervision and inspection.

In the case of Switzerland where the Federal Authorities contribute to the maintenance of Technical Education, the inspection by the Federal Authorities is of a sort which leaves nearly everything to the authorities of the Canton and of the Commune. The Federal Authorities seek to assure themselves that the money which they provide is used for the purposes for which it was voted and that the administration of it is reasonably efficient.

To supplement the Reports of the inquiry in the several countries as presented in Part III, the following appropriate matters relating to England, Germany and the United States are introduced here.

A: IN ENGLAND.

In England the administration of Industrial Training and Technical Education comes under the Education Authority which is responsible for

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Elementary and other public education in the County or Borough, as the case may be. The question of the further devolution of powers from the Education Authority to Local Bodies was referred by the Board of Education to the Consultative Committee. The following two paragraphs from their report shed some light on a common quality in human nature and a dominant motive for its exercise in the public service.

As regards the general principles which appear to them to underly any successful scheme of devolution, the Committee consider that experience shows that *local bodies* will, as a rule, work better and be better manned if, in the first place, important and interesting duties are intrusted to them, and if, in the second place, they are given considerable executive powers in carrying out those duties. This might be combined with the retention by the Education Committee of the ultimate control of their sub-committees' proceedings, although the exercise of that control might seldom be necessary.

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One word as to what we mean by devolution, and what the precise functions allotted to *local bodies* should be, and how far they should extend. The main object being to enlist local interest and enthusiasm on behalf of education, there must be responsibility attaching to the work; and it will be found that the real definition of responsibility amongst local bodies, whether Managers, Correspondents, Attendance Officers, or others, will be the expenditure of money.

B: IN GERMANY.

In some of the States the Governments took the initiative for the purpose of giving the people opportunities, and inducing them to avail themselves of these opportunities, whereby they might become efficient industrially, and develop qualities of good citizenship through contact with educational work after leaving the Elementary Schools. Individuals and Local Authorities supported the action of the Governments. In these matters it is difficult to tell which was the first cause, and which the effect. One can only say that the clearest intelligence of the communities, as represented on the one hand by individuals and on the other hand by the organized State Governments of the time, concurred in believing that the prosperity and the strength of the State would be benefited by Industrial Training and Technical Education; and that the ability of the individual, his well being and his means of providing for himself and family, would be increased. There is no hostility or conflict between the interests of the State as an organized whole and the interests of individuals as citizens, or the interests of individuals as workers.

In other States the Trade Guilds, Corporations and individuals took the initiative and were active in establishing and maintaining schools. The Guilds still give grants to the maintenance of some schools, and their members take an active part in the administration of them.

LOCAL BODIES AND CENTRAL AUTHORITIES.

Authority is usually left with the Local Body to make arrangements concerning Courses of Study to be provided, teachers to be employed and the general management and discipline of the schools. A Central or Higher Authority possesses the power, which as far as could be learned it seldom exer-

cises, of making general regulations as to minimum standard of attainment, minimum qualification of teachers, length of courses, and such matters. This Central or Higher Authority does exercise the right to examine the schools by means of visits of inspection to determine how well their work is being done. Systematic examination of pupils upon specified subjects is not followed. The State Authority exercises its power to examine schools, to the maintenance of which it does not contribute, as well as to inspect the others to ascertain that the funds which it does contribute are used for the purpose for which they are designated and that the work is carried on efficiently.

The management of the Continuation Schools in the larger towns is in the hands of special Boards of officials, who represent the employers, employees and educators. They have the general direction of the school work. Each school has its own Director, and when there is a system of schools in the place there is a Director of the system who is often a member of the Managing Board.

The general custom is to have this Board for the Continuation Schools distinct from the Board controlling general Elementary and Secondary Schools. Sometimes each division of the Continuation Schools has an Advisory Committee of persons who are intimately identified with the particular trade which it represents. In this way the employers and workers alike become interested and help to make the schools efficient and practical. The growth of confidence in the school is the result.

The several States, in which the eleven Technical High Schools are located, accept the full responsibility for their maintenance. The Technical High Schools, in the German system, correspond to Technical Colleges or Technical Universities in the United Kingdom and Canada.

GENERAL PRINCIPLES GOVERNING THE INSTRUCTION.

Throughout Germany the general principle is now accepted that the instruction in the Continuation Classes is most advantageous when grouped around the callings or occupations of the pupils. In those cities where the Continuation Schools are not provided at all, or are only provided meagrely, with workshops, tools or machinery, there is less close connection with the trades and industries by means of expert advisers or committees; and there are fewer of the teachers who have had practical experience in the workshops and factories.

The Continuation Schools are not only for those who are serving their apprenticeship and are between the ages of fourteen and eighteen. They also serve as schools for journeymen and even for the masters. These advanced Continuation Schools exist in connection with the school system of all the great cities of Germany. They enable young people, who are unable to give up their trade and devote their whole time to attendance at a Technical School, to go as far as their ability and the time at their disposal can carry them.

The *Mittelschule* or *Technikum* might be called a continuation of the Continuation School. The former are institutions where skilled workmen, who have already taken advantage of the Continuation Classes and had a good deal of experience in shop practice, can receive training and knowledge necessary to

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qualify them for positions as foremen, superintendents, etc. In Prussia these Secondary Technical Schools are carried on in connection with the Continuation Schools. In Bavaria they are carried on in connection with the Realschulen. In the latter case the pupil who takes the two year course after the Realschule may obtain admission to the Technical High School or he may take the third year in special work on the subjects for the particular occupation he intends to follow.

In the Continuation Schools or Classes, and in the Lower Technical Schools, the object of using materials, tools and machines is to prevent the pupils from becoming mechanical in doing their work. The practice and experience in school with tools and machines gives them an all-round training so that they may know something of each of the processes relating to their trade and be ready to become experts in any one of these by long or short practice.

In the Middle Technical and Technical High Schools (Technical Colleges) the work is chiefly of an intellectual character intended to fit men for positions of leadership. In but few cases does manual work in them occupy any considerable portion of the time.

The Technical High Schools are schools of technology and not schools of technique for manual work with machines or for handicrafts. They are the institutions of the highest grade and their aim is to train the students to independent thought and ability in their technical affairs. The students are taught and trained constantly to take a wide view in all their considerations and in all their doings. It is recognised that a failure in any undertaking shows that something had been overlooked or neglected. On the other hand if all the conditions have been taken into consideration, according to their importance, successful planning and satisfactory accomplishment may be expected.

In the Technical High Schools the workshop practice is not intended to teach the students a trade or to make them expert machinists or experts in any handicraft or tool or machine operation. The purpose is to give the students an adequate knowledge of materials, tools, machines, working methods and to make them acquainted with the workmen, their point of view and the conditions under which they work. All this is for the purpose of giving them clear ideas as to the conditions, means and limitations of manufacturing and workmanship, the workmen's attitude and capacity and of management of a factory.

FEATURES OF THE MUNICH SYSTEM.

The information furnished by Dr. Kerschensteiner on the organization and planning of the compulsory Technical Continuation Schools for boys in Munich is so clear, suggestive and illuminating that it is given at length in another place.

The features of the school system of Munich which stand out with lessons of value to Canada are:—

1. The effort to arrange courses, in the two final years of the public Elementary Schools, of such a character and in such a way that the children will be prepared

for going on with their education in the Continuation Classes, and disposed to seek willingly to derive benefit from classes in school after they have gone to work.

2. The effort to adapt the Continuation Classes to the needs of all the population, especially those between 14 and 18 years of age, and, at the same time, to adapt the work of the Continuation Classes to the needs of the various industries and occupations.

Every care is taken that there shall be close correlation of all the instruction in mathematics, computation, language, etc., with the particular occupation of the student. For example, boys from no fewer than 47 different trades are put into different classes in order to provide for this co-ordination. The occupation is made the pivot around which, and through which, the other studies are made to bear on the pupil. At the same time regard is had to broadening the interests and the sympathies of the pupil as well as widening the range of his knowledge and skill. One object of the compulsory Continuation School is to give the pupils an all-round training so that they shall know something of each of the processes relating to their occupation and as assistants can be put with advantage to anything in the trade itself.

3. The ample provision of schools wherein young men who have completed their attendance at the Continuation Classes and completed their apprenticeship can gain wider knowledge and experience bearing upon their own trade or occupation. These schools widen the worker's range of knowledge of principles, materials, tools and machines and also give him an opportunity to increase his ability and skill by the use of tools, materials and machines. Such workmen are encouraged to complete their masterpieces in connection with one of these schools. The halls and other places are full of specimens of superb workmanship. The boys attending the Continuation Classes have opportunities to see these, in fact cannot avoid seeing them, as in many cases the Workmasters Schools are held in the same building as the Continuation Classes. The stimulating effect of these pieces of workmanship with their content of art, skill, and beauty is subtle and incalculable.

FINANCIAL SUPPORT.

There is almost invariably some participation by the State in the support of schools which are primarily for local service and the immediate benefit of those who will be employed in the locality. Where a school purposely serves an area of population larger than the town where it is located, it is likely to have owed its establishment and a large part of its maintenance to the action of the State or some business, trade or philanthropic organization. When the State and City combine in meeting the expenses of such institutions the State usually takes the larger share of the burden particularly for the highest institutions.

The benefits which come directly to the individual, to the City and to the State are not separable. Moreover, whatever is of direct and real benefit to the community is thereby of advantage to the State, and therefore to some extent the State is warranted in meeting part of the cost.

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It is recognized that the lack of suitable training and of Technical Education has held back the economic development of entire districts and of considerable industries. It is also true that some communities which derive immediate and direct benefit from Technical Education are unable to assume or bear the whole burden of costs themselves. Rather than have the community go unserved in this way, the State comes to its assistance. No uniform rule is followed in settling the amount to be contributed respectively by the local community and State.

The representatives of the industries of the place, either through a Guild or Association or otherwise, often contribute to the maintenance. The reason for this lies in the obvious and immediate advantage to the industry from a supply of thoroughly trained and competent workers.

As a rule, for all except the institutions of the highest grade which serve the State as a whole, the local communities provide the buildings and maintain them.

As compared with the expenses of general education, the costs are higher in the case of Industrial Training and Technical Education. The buildings and equipment are more expensive for the number of pupils they can accommodate as is also the maintenance of the plant up to requirements. Competent teachers who are in touch with industry, and at the same time able to teach acceptably, although not scarce, command relatively high remuneration. Provision is now being made to grant such teachers pensions; and in case of death provisions for wife and family.

C: IN THE UNITED STATES.

The organization of Industrial Training and Technical Education in the United States differs widely in the several States in respect to the degree of control exercised by the State and the amount of financial support which it gives. In a recent publication* by Mr. C. A. Prosser, Secretary of the National Society for the Promotion of Industrial Education, some information on this subject has been given. The following facts are quoted from it. It presents a brief summary of important points, in this connection, which are to be found in the Commission's Report of the enquiry in the United States.

MAINTENANCE BY STATE AND COMMUNITY.

The entire cost of the public trade schools of Connecticut is met from the treasury of that commonwealth. In Massachusetts the local community builds and equips the plant and the state pays one-half the operating expenses. This is substantially true in Wisconsin as well. One-half of the amount expended by the local authorities is contributed by New Jersey, while New York gives the town or city five hundred dollars for the first teacher of practical work who is employed and two hundred and fifty dollars for each teacher of the same character who is added to the teaching force. In recent legislation the tendency is toward a state system which will require the local community to establish the school at its own expense, meet all the operating expenses and receive from the commonwealth one-half the cost of maintenance if the work is approved by the State Board of Control.

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* "Vocational Education Legislation of 1910-11," published by American Political Science Review, November 1912.

CHARACTER OF THE MANAGING AUTHORITY.

Everywhere there is a growing recognition of the need of close co-operation between the schoolmaster and the man of affairs in carrying on practical education in this country. Three means of securing the participation of laymen are possible, namely:—by lay representation on state boards of control, by lay representation on local boards of control, and by advisory committees surrounding the principals and teachers of vocational schools, composed of employers and employees who have had practical and successful experience in the kind of training which the schools give. Up to this time state boards of education and local school committees have not been chosen with the idea of their special fitness to deal with the problems of practical education. Hence the attempt to secure in recent legislation a larger helpful influence from the practical man in the work of schools fitting men and women for the duties of home and shop and farm.

CONNECTICUT.—The laws of the different states vary greatly in this matter. Connecticut has direct control of its trade schools by the State Board of Education, which also has charge of general education in that commonwealth. A majority of its members are lay rather than professional. Most of them have not been selected for their special fitness for dealing with the task of vocational education. There is no local board of control for the school and no local advisory committee surrounding it.

MASSACHUSETTS.—The State Board of Education in Massachusetts is responsible for the administration of vocational education, as well as general education. Its lay members have not in general been selected with any special reference to their experience and fitness to deal with problems of vocational education. The local boards of control for the state-aided schools of that commonwealth may be either the regular school committee of the community or a separate board of trustees chosen for their special fitness in dealing with the task; usually the former administers the school. The Act of 1911 requires all schools in the state asking for approval and aid to have advisory committees composed of members representing local trade industries and occupations whose duty it shall be to counsel with and advise the school officials in the discharge of their duties.

NEW YORK.—There is no state board, either professional or lay, in New York. The administration of the state-aided vocational schools is entirely in the hands of the Commissioner of Education and his assistants. The schools are managed locally by the regular school committee. The law requires the appointment of advisory boards similar to those of Massachusetts.

NEW JERSEY.—In New Jersey the State Board of Education, which is almost entirely a lay-body, has little control over the vocational schools. Usually the school is controlled by the local Board of Trustees, a lay-body, consisting of the Governor, Mayor and eight others appointed by the Governor. No advisory committees are authorized or required under the law.

WISCONSIN.—In the recent laws of Wisconsin, we find the most complete assertion of lay interest in the country. The part-time and continuation schools of the State and practically all other vocational training has been placed in the hands of the State Industrial Commission, made up largely of laymen and having no responsibility for the general education of the State. In the cities and towns, local boards of control, entirely independent of the regular school committee, are provided for and given the duty and power of carrying on the part-time and continuation schools. There is every indication that the legislation of the future will give a larger recognition to the place of the layman in the State systems of vocational training which cannot help but have its effect upon the practice of the regular schools in this respect.

PRONOUNCEMENT BY NATIONAL EDUCATION ASSOCIATION.

The following is taken from the Report of the National Education Association on *The Place of Industries in Public Education*.

ORGANIZATION AND ADMINISTRATION.

Vocational education under private and philanthropic auspices is commonly organized in separate and specialized schools. When it becomes a part of public education, several schemes of organization and administration become possible.

A. The vocational school may be completely separated in the administration and support. This type is illustrated in certain state schools, which have their own boards, and to which authorities make assignments of funds. The California Polytechnic has thus a completely separate organization. At times it has been proposed that a separate state machinery of administration was necessary to initiate and carry on vocational education. It is argued in support of this position that the administration of the newer type of education requires a different point of view, and different estimates of educational values from those which ordinarily prevail. Also that the degrees of affiliation with business and practical conditions is such as to be most effectively accomplished by having separate governing boards and specially provided funds. There are a variety of reasons why it may be expected that the state rather than the locality will contribute more to this form of education than to ordinary forms, the chief argument being found in the mobility of labor.

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B. The vocational education may be carried on by the regular educational authorities, but in distinctly separate schools, under principals or directors who pursue the distinctly vocational aim. Hitherto it has been hard to accomplish this form of organization in such a way as to produce distinctly vocational education. Only part of the work has been vocational in character, the aims of liberal education being pursued to the relative exclusion of others. But the intermediate schools now being organized in New York, under control of state and local departments of education, provide a variety of checks by which the vocational character of the school can be preserved. These are chiefly: (a) state inspection by a special agent of the state education department, (b) the provision that the vocational work must be carried on by a separate organization, and (c) the requirement that the shop teachers shall be men with practical training and experience in the industries.

C. It has often been proposed that vocational education should be organized simply as a phase of a complete educational scheme, much as manual training is now part of the general program. Various suggestions along this line have been made: (a) That half of each day be given to work of the academic character found in the upper grades, and half to shopwork, household arts, etc.; or (b) that the ordinary school day be kept for its present purposes, and that the hours from three to five and perhaps Saturday forenoon be devoted to practical work; (c) the tendency where vacation schools have been established to use the regular school buildings and equipment during the summer months for practical or vocational work.

Regarding these plans, it has been urged that in the present temper of schoolmen the vocational work could hardly be expected to meet with sufficient sympathy and support, and that the traditional subjects, because they lend themselves so effectively to ordinary methods of teaching, would displace the vocational work. Probably this will not always be the case; when vocational training shall have established its own methods and content it may be able to hold its own. Furthermore, programs like the above seem better adapted to elementary vocational work when that shall have been established. In the meantime, much may be said in favor of having the intermediate industrial-arts school under its own roof, and working completely under its own program. There is thus provided an industrial atmosphere, and such a school may be expected to develop its own social spirit. It may require time and tact to prevent the growth of obnoxious class distinctions between the patrons of two different kinds of schools, but this is a problem that has already been met and solved in the universities of America, and in the introduction of scientific and commercial studies into secondary education.

SECTION 2: THE CORRELATION OF COURSES OF STUDY TO OCCUPATIONS.

Not much real research work or experimental work has yet been done in organizing courses of study entirely suited to the needs of individuals following different occupations. One of the services which this Report may perform for educators will be through putting before them types, and in some cases details, of courses of study which have been worked out under conditions somewhat similar in many respects to those which prevail in Canada. Throughout the preparation of the parts of the Report that deal with courses of study, that aim has constantly been kept in mind.

THE EXPERIENCE OF MUNICH.

The case in which the most careful investigation was made of the results of experience in Courses of Study for Continuation Industrial Schools was that at Munich. In consequence, the courses of study in detail for two types of classes, viz. Schools for Machine and Metal Workers and Schools for the Building Trades, have been presented in full in the Report on Germany. A brief summary of what has been done there is presented in the two following paragraphs.

In Vocational Education an attempt is being made generally to use practical training in close relation to the occupation as the first form of instruction, and afterwards to use text-books to supplement that. The interest and goodwill of the pupils are aroused and maintained by this means better than by exclusive or predominating use of text-books at the beginning.

At Munich the Courses of Study for the Continuation Classes were practically re-cast into their present form, which was adopted in 1910. The Courses of Study which had been followed up to that time were given thorough examination and discussion by all the teachers and instructors of the different industrial schools. Experience as to the fitness of the Courses of Study had been obtained during the previous nine years. Forty-six of these conferences were held under the supervision of School Inspector Schmid, under whose immediate charge was this part of the school work, of Munich. The Courses of Study were then submitted to and studied in forty-six further conferences under the immediate supervision of Dr. Kerschensteiner. In these conferences the masters and journeymen of all the individual trades took part, and School Inspector Schmid and the Directors and heads of departments of the various industrial schools were present. Out of the fulness of discussion thus carried on, the present Courses of Study were shaped, and they have the approval of teachers, employers and employees.

From all the Commission could learn, the general verdict in Germany agreed with that of Munich, viz., that Courses of Study which did not have a direct bearing upon, and an easily recognized connection with and value to, the occupations of the pupils did not accomplish what was expected of them.

INSTANCES FROM MASSACHUSETTS.

An illustration of this principle is to be found in the statements of the experience of the Principal of the Industrial School at Worcester, Mass. He found an unwillingness on the part of the men to come for any Course unless it had to them a definite and direct bearing on their occupation. In this connection the experience of the teacher of Mathematics at the Co-operative High School at Fitchburg, Mass., may be cited. He was a graduate of McGill University. During the week in which the pupils attended his classes, he taught the Mathematics which had a direct bearing upon processes with which the pupils were concerned at that particular time in the shops where they worked. That was done regardless of the sequence of the parts of the subjects in the text books. Then during the last, that is the fourth, year of the Course, he reviewed the subject as a whole and correlated with the students the different parts which might have been overlooked under the method which he followed in giving the pupils practice in arithmetic which affected their interests at the particular time.

STATEMENT BY THE NATIONAL EDUCATION ASSOCIATION.

On the question of the organization of subject-matter and Courses the National Education Association presented its conclusions in its Report on the

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Place of Industries in Public Education. The following extracts from that Report present the case with such clearness and comprehensiveness that they are introduced here.

ORGANIZATION OF SUBJECT-MATTER.—It has already been made clear that the character of the subject-matter will vary according to predominant industries for which preparation is being made, and therefore according to locality. Under the discussion of the main groups or related industries, suggestions were tentatively made as to organization of subject-matter. The following summaries, though involving some repetition, are submitted for the sake of further clearness:

A. Concrete work.—Recalling that by this is meant all work with materials in a manipulative way, including analysis of machines, the following principles seem valid:

1. The concrete work should result in products which are usable and under favorable conditions salable. It will be noted that this principle is opposed to the one commonly employed in technical and manual training, where the emphasis is on the exercise, or isolated-type exercise. It is true that in some successful industrial education today, only exercises are dealt with; but almost without exception these schools have highly selected groups of workers. There appear to be strong pedagogic reasons for the acceptance of the above principle in the case of youths from fourteen to sixteen who are finding themselves in an industrial sense.

2. While in the earlier stages of industrial-arts training, attention will be given largely to quality of output, there will be stages in the course when, through actual experience, the significance of quantity should become understood. That is, commercial conditions should be sufficiently reproduced that an abiding appreciation of the importance of rate of work shall be developed. Some schools producing usable products accomplish this by keeping an account of each worker's contribution, and a computation of its probable or actual market value.

B. Technical work.—Already emphasis has been laid on the pedagogical desirability of having technical work—mathematics, drawing and art, sciences, laboratory manipulation, and even English on the formal or expressive side—grow out of and manifest its relations to the concrete work, in the intermediate stages of industrial-arts training. If this point of view is correct, it is evident that we may expect the evolution of more than one kind of shop mathematics, shop chemistry, shop study of physics, etc. The development of this principle will be persistently opposed by those who believe that the pedagogical order toward mastery is through the subject studied first in its pure form. From this point of view, mathematics must be studied as pure algebra, geometry, etc., first, then its applications; a course in general chemistry must precede applied chemistry in dyeing, foodstuffs, etc.

Experience thus far seems to demonstrate that when the available time of pupils here under consideration is taken into account, as well as the importance of securing vital interest in such studies the most effective method of approach in the technical studies is along the lines of their application, with comparatively short periods of time devoted to the study of pure forms.

There can be little doubt that all vocational education is today, in this respect, affected by certain generalizations which emanate from the trade schools connected with wood and iron work. Mechanical drawing, for example, figures largely in these industries, at least so far as the ability to interpret drawing is concerned; but there may be entire groups of industries in which mechanical drawing has little or no place as a vocational subject. Similarly with regard to certain sciences; chemistry may be of most fundamental importance in some groups of industries, and quite superfluous in others.

C. General vocational studies.—Around each group of industries may be gathered historical, geographical, economic, and sociological materials which, while not conferring immediate efficiency, do undoubtedly give vocational intelligence and vocational ideals. The evolution of any industry, or group of industries, may be studied (history); the present distribution of such industry over the world, the varying conditions found, the new movement in its sources, its materials, its machinery, its social importance, etc. (geography); rates of compensation, union conditions, relations between employees and employers, competition, effects of immigration, industrial hygiene, etc. (economic)—all these may be made appropriate objects of reading and study. To this group may be added, in certain lines, studies in the kind of English which has vocational significance.

The above program does not preclude the development in these schools of studies that frankly have no vocational significance. English literature, music, art, history, science, may, if time permits, be studied as cultural subjects, as resources against time of leisure, or, as sometimes denominated, avocational subjects. When we have once settled the program of vocational studies, we may find time to introduce others which are thus frankly non-vocational. Under this head might be placed social or civic studies which contribute to the making of the useful citizen. But for the present it seems that civic studies, sufficient for the type of youth here under consideration, can best be given in connection with vocational pursuits themselves, and hence in the division "general vocational studies."

SECTION 3: THE INFLUENCE OF TEXT-BOOKS AND EXAMINATIONS.

RIGHT AND WRONG USE OF TEXT-BOOKS.

The practice of using a text-book to get up a subject in such a way as to be able to pass a written examination on questions based upon the statements contained in it is of doubtful value. Later on in life the student may be able to avail himself of some of the information thus acquired, but the injury to the student comes from getting him into the habit of supposing that because he knows what is said about the subject in the book, he has a real knowledge of it and ability to manage processes or solve problems. Text-books have the greatest value when they are used to supplement knowledge and ability gained by the student from his observation, experiments and experience. They supplement the comparatively small amount of knowledge which any young person can acquire by his own observation and work.

Text-books are also useful as supplementary for the student who can interpret what is stated in them by the increasing amount of knowledge which he has made his own through his experience. Text-books also render valuable service in putting before the student a model for arrangement in presenting a subject or in making a report upon what he has done.

BOOKS FOR CORRESPONDENCE-STUDY COURSES.

In the testimony offered to the Commission during its enquiry in Canada, much favorable comment was made on the character of the text-books prepared for the International Correspondence Schools, with headquarters at Scranton, Pa. The favorable comment was usually based on the fact that the arrangement of the subject-matter was mainly in the order of the usual progress of the learner of a trade in acquiring ability in that trade. The plan of preparation in the main was reported to be as follows:—When a course was to be offered on a particular subject or branch of work, special writers prepared text-books. These were not constructed in such a way as to present the subject as a whole, in the order of its logical sequence of treatment, for the purpose of giving a full knowledge of such a subject as botany, mechanics, chemistry, etc. The matter was arranged in the order in which it would be come to, or be required by, the worker in learning or carrying on his occupation.

VALUE OF PERSONAL EFFORT BY PUPIL.

The work undertaken by the student and the spirit in which it is undertaken are of the first importance. These depend a good deal upon the teacher. The teacher is the prime factor in the school when he arranges conditions and directs efforts for the natural growth in power and knowledge by the pupil. The growth

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comes from the effort the pupil puts forth and not from the work done by the teacher for him. The text-book implies a passive and receptive attitude of mind, which should be followed by active, expressive, constructive effort. Text-books, appliances, apparatus, machines, tools and materials should all minister to the mental and physical activity of the pupil in acquiring ability, good habits and good will. He can apply his efforts to more advantage when the courses, the text-books and the equipment are all of the right sort. However, a multiplicity of equipment all arranged, materials ready for use and lesson in the text-book duly designated, may prevent the student from exercising that measure of judgment, comparison and initiative which are all-important in Industrial Training and Technical Education.

THE INFLUENCE OF EXAMINATIONS.

In classes and schools of Industrial Training and Technical Education it is necessary to get away from the established traditions as to the value of examinations. Courses of Study have been often framed directly for the purpose of enabling a student to pass a certain examination, appointed or dominated by some higher or different education authority which exists for a purpose other than the training of the bulk of the students in the lower schools for their life work.

POWER TO REMEMBER VS. POWER TO DO.

The kinds of examinations which have been set, as a rule, have been framed and used chiefly to test the knowledge of the candidate in respect to what he remembers of what he has read or been told. An examination which, in the major part, is a test of the memory of the student for information which he has accepted wholly on authority, is a poor means of discovering or determining the ability of the pupil to go on, or the amount of real knowledge he has acquired, or the power which he has developed by his previous education.

In Germany the plan usually followed is to require successful attendance for a given length of time at a school of a certain kind. The fact that the pupil attended such a school and took the courses to the satisfaction of the teacher is the best evidence of his having attained a certain amount of knowledge, intelligence and ability in regard to the subjects taught there. It is also evidence of the ground he has covered in regard to the subjects.

When the examination is chiefly a test of memory, the state of health of the candidate at the particular time has a good deal to do with the way in which he handles the questions. The making the most of the knowledge one has, and the power one has at examination time, is also to a large extent a question of temperament. Some candidates are so much disturbed by the prospect of an examination and examination conditions that they do not do themselves justice. In this connection it might be said that the temperament which lets a candidate become unfitted under special circumstances of examination would also do the same thing for him in practical life. However, if that be the case,

the inference should be that he needs training to remedy the defect, and he may be abundantly ready to receive the training although failure in the examination might prevent him being accepted as a pupil.

THE OPINION OF DR. PUTMAN.

The following are extracts from a communication from Dr. J. H. Putman, Inspector of Public Schools, to the Public School Board of Ottawa and the teachers.

The system of making promotions depend on a formal written examination encourages cramming, excessive memorizing, and superficial teaching at the expense of the development of power. It tends to throw on the examination a responsibility which should rest on the teacher—the responsibility of promoting her class, defectives and irregular attendants excepted. It makes a snap judgment, expressed in marks and percentages, and on which a year of the child's life depends, of more value in estimating the child's powers than the teacher's intimate knowledge of him. It exposes the child to the whims of examiners—both of those who set the papers and of those who examine them—and to the injustice of having to undergo this test when he may be unwell or in a state of excitement, and fright amounting sometimes almost to panic. It tends to shift the centre of gravity of the school away from teaching and conduct—its legitimate fields of action—to a preparation for examinations, at best a minor or merely incidental part of the work of the school.

Three of the important suggestions to teachers by Inspector Putman are:
“That a pupil's fitness for promotion should be decided mainly by the teacher's estimate of him as formed from his daily work in the class and from the results of the written tests given from time to time.

“That the pupil's age should always be considered, and the older he is, the greater is his claim for promotion.

“That any written tests given be given without notice to pupils, and at such intervals that no whole day or week be set apart for examination purposes.”

RECOGNITION OF INTELLECTUAL DEVELOPMENT THROUGH WORK.

When the requirement of previous experience in practical work is laid down, it is evidently for the purpose of ensuring that the student has, in the development of power to do things, acquired for the purposes of his further education an equivalent of such knowledge as he would obtain from books and from reading for the purpose of going on to the study of language or literature or history, or some other book subject. The fact that a student has had prolonged mental training on subjects or problems or work, gives him a certain capacity and qualification for taking up new subjects or new kinds of work, as well as for going on with the old ones.

It is not suggested that examinations have no place or use in connection with admissions to classes or schools for Industrial Training and Technical Education, or have no value in the course of the student's progress after he has been admitted. But what is to be guarded against is the menace of examinations in so far as they direct the attention of the pupil and the school to seek first a successful pass, in the fond hope that other things will be added. A valid use of examinations for admission to any class or school should take cog-

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nizance of the following: (1) that the pupil shall be old enough to be at a stage of growth and intellectual development and bodily strength which will enable him to profit by the courses and the training which the class or school offers; (2) that he shall have sufficient knowledge, training and experience to be able to take up and go on with the course and its work without undue loss of time; (3) that he shall, in respect of his content of knowledge, mentality and method of work, be on nearly the same level as the others in the class.

SECTION 4: METHODS OF INSTRUCTION.

No matter how the Course of Study may be arranged or what subjects may be included in it, the methods of instruction that can be employed to advantage depend upon the particular object to be accomplished through the work to be done. The kind of work to be done will depend upon the trade, occupation or career for which the student is being prepared.

In the different schools of the several countries visited the method or methods of instruction may be said to follow one of two general lines, or to follow both, with sometimes more stress or emphasis upon the one than the other. On the one line the chief effort is directed to the acquisition of knowledge concerning the principles and theories that are connected with the trade or occupation; on the other the main part of the attention is given to gaining a wider knowledge of, and a great skill in, the use of materials, tools and machines. In many cases the time of the pupil is divided between these two, and because of that division there is increased progress along both.

In the kind of Industrial Training and Technical Education which follows immediately after the Elementary School, the general opinion seems to be that pupils make more progress and get more real benefit when they receive instruction in theory close in point of time to the practical work, whereby the theories may be put to the proof or put into practice, and whereby principles may be illustrated or demonstrated.

MAINTAINING THE INTEREST OF PUPILS.

Any method to be successful must be able to enlist and retain the interest of the pupil. The mood of mind in which the pupil comes to his work, as well as the spirit in which he carries it on, has much to do with the good he gets out of it and with the progress he makes in ability to turn out good work.

The gulf between memorized information and real knowledge is both deep and wide. For example, dramatic representation by a pupil of the information acquired often turns it into real knowledge. Among the things which young people instinctively desire to do is to act, in the dramatic sense. The use of that method of instruction in Industrial Training and Technical Education is practicable, in spirit if not in form, when the pupils observe and participate in some action or series of actions with any dramatic quality in them, even in the use of materials.

It has been said that a poor method in the hands of a good teacher is better than a good method with a poor teacher. Like some other rotund sayings, that does not convey a statement of much, if any, ascertained truth.

One of the essential qualifications of a teacher is ability to give such a setting to the activity of the pupil, and such direction to the work, that his interest will be awakened and sustained. Sometimes it becomes necessary for the teacher to supplement the formal method of instruction by the personal touch that arouses and sustains the interest. It is better when the kind of work to be done, as arranged for by the teacher, is in itself sufficient to awaken, sustain and increase the interest of the pupil.

The continuation of interest depends upon the recognition of a definite purpose by the student. Purposive work, especially if the object is one greatly desired by the pupil himself, is the kind that has highest educational value. In the judgment of educators that applies from the earliest years onward.

TOWARDS KNOWLEDGE, ABILITY AND HABITS.

Another point of importance is that the method or methods followed should be such as enable the student to use as much of his previous knowledge and skill as practicable. Growth in knowledge proceeds from the known to the unknown, and the teacher will nourish best who bears that in mind.

The methods should also be adapted to the development of the particular kind of knowledge, intelligence, skill and managing ability which will be called for in the occupation of the pupil. It is not known that ability to do one thing well implies that that ability will flow over and be available to the student to do other things of a different sort also well.

The methods followed should have regard also to the formation of habits as well as to the development of power to perform acts or a series of acts. It is possible to pursue certain studies under the conscious and compelling direction of authority without advancing the education of the pupil's mind and will.

When habits of the right sort are well formed, some powers of the body, mind and spirit are thereby released for application to other and higher tasks.

THE METHOD OF APPROACH.

Mention has already been made to the effect that an important function of the teacher is to indicate the direction in which the pupil should work and not to give him minute directions as to how he should do the work. The order in which the subject or project is presented to the attention of the pupil may constitute an important part of the method of the teacher. In this connection it is well to bear in mind that the logical sequence, which belongs to a subject when it is being studied by a mature mind, would not be suitable for the presentation of the subject to young persons of very limited range of experience and with mental powers undeveloped. Certainly there have been much waste of time, lack of interest, discontent and disappointment from the teaching of science in schools where the science subject has been presented or studied as

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arranged for by those who had written text-books presenting the subject in its logical sequence without regard to the sequence of growth and power in pupils to understand it. In this connection attention is directed to the memorandum by Dr. Lynde on Methods of Teaching Science (see page 124). The principles enunciated there apply with equal force to methods of training towards efficiency in industrial undertakings and technical knowledge.

Since most teachers teach as they were taught and not as they have been told to teach, it is important that the methods of the teachers who train Instructors for Industrial Training and Technical Education should be of the very best. In Germany and also in England the teachers for the practical workshop side are in most case recruited from those who have been excellent students in the Continuation School or Classes and have had practical experience in the works. When such persons have any aptness for teaching, they adopt the methods which they found to be most helpful from teachers under whom they worked.

Some of the methods which have been found highly successful in teaching and training in Drawing, and which are radically different from those which used to prevail wholly, and still prevail quite generally in Elementary and Secondary Schools, are so fully illustrative of the main features of what was observed and learned by the Commission regarding successful methods of instruction in Industrial Training and Technical Education that an outline of them is presented here.

DRAWING, DESIGN AND ART.

Reference has been made to the apparently marvellous results which were found from the method of teaching Drawing to elementary pupils in a village or rural school at Sompning in England. That is given in somewhat full detail in the Report at page 298. Contrary to ordinary expectation and accepted theory of what is required in teachers generally, the children in the village school learnt to draw well without the supervision or assistance of teachers who were themselves able to draw. The distinguishing features of the lessons there were that the children were directed to apply themselves in observing, obtaining impressions and then representing these impressions in form and colour according to their natural powers. The function of the teacher was to guide the child to criticize its own work and to further direct it to self-effort and self-realization through repeated attempts to make the drawing represent the thing as the pupil saw it and not as the pupil thought the teacher would like to have the picture look.

CLEAR "MENTAL PICTURES" COME FIRST.

Drawing has been regarded as a special subject to be taught by special teachers. The best authorities indicate that power to draw should be cultivated and developed from earliest years and be considered integrally part of Elementary Education in the same class with the arts of Reading, Writing and Computing. When the natural desire and ability to make pictures has been properly culti-

vated and developed it is easy to direct the pupil through such a course as will enable him or her to represent in form or colours what he sees or has seen.

This art in the Elementary and Secondary Schools should be considered first as a useful one for the purpose of communicating and recording impressions and recording images of situations which can be pictured in the mind. The authorities agree that attention should be given chiefly to training the pupil to observe closely and clearly in such a way that the mental image will be true to the thing observed and one that the memory can recall.

Concurrently with that a good deal of practice should be given to enable the pupil to control the instruments or tools by which the drawing is to be produced. That facility can best be acquired by much practice in actual drawing from things observed and then making comparisons of the drawing with the thing itself.

Much instruction or suggestion as to what to look for, what lines to make first, and other matters of technique, had better be left until the pupil has had considerable experience in discovering how nearly he can make his representations on paper look like the things which he has seen. After this practice the pupil will be ready to profit by instruction and training in matters of technique.

The following is taken from a Bulletin published by the Agricultural Education Committee of England, *Nature Knowledge, its Progress and Interpretation*, by Henry Boulton, author of "Nature Study with Brush Work Diagrams."

If the introduction of brushwork means bringing into our schools an ally that will assist us in training the children to observe correctly and to memorize what they see, then I am strongly of opinion that it should have an important place in our scheme of "nature-study," but on one condition—the work of the scholars should be judged not from the standpoint of artistic merit, but from that of accuracy in delineating and colouring those details of the object which the teacher desires to impress on the minds of the pupils. It has been said by some who advocate pattern brush-drawing, that it is too difficult a task for children to copy, in colours, natural objects. Our experience has proved this to be an entirely incorrect statement. If the start is made in Standard V. and upwards with the simplest natural forms—a shoot in Winter or Spring, a leaf in Summer, or a seed pod in Autumn—it will be easy to lead the class by carefully-graduated steps to the more difficult forms. We began last year, in the month of February, by giving about half-a-dozen lessons in "blob" and "line" work, in order to give facility of manipulation with the brush. In March, shoots of the lime with undeveloped buds were handed out, and the results were so encouraging that we arranged to continue the work as a study in bud position. Bud development into leaf, flower and fruit followed; and by the end of June an exhibit of brushwork from natural objects was prepared by the scholars for the Nature-Study Exhibition held in London last year, comprising illustrations of bud position; development of bud into leaf, flower and fruit; bulb and corm development; fruit spurs; fertilization dodges; and stages of insect and aquatic life. Some of the best work was done by girls, who, unlike the boys, had received no previous instruction in drawing. This exhibit was awarded a bronze medal. Lest some may think such results can only be expected under exceptional circumstances, allow me to say, for their encouragement, the staff is only what might be expected in a rural school, and only one has a drawing certificate—that known as the old "D." This should be a sufficient answer to the statement that such exercises are impracticable.

Brushwork, carried out on these lines, will be found to give added interest to the "nature-study." The children will watch more keenly for developments of the objects under observation if they know they may have to copy them; and the act of reproducing the shape and colours will lead to a greater concentration of mental effort on the part of the child.

LITTLE ATTENTION TO TECHNIQUE AT FIRST.

Drawings that are strictly accurate and well finished should not be looked for from beginners. It does not appear to be profitable to spend time in trying to do work perfect in technique, etc., until considerable facility has been developed in making sketches and simple pictures from objects observed. This

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applies also to making drawings for articles to be made by the pupil himself. Stress on accuracy and precision of drawing should come later, after the pupil has ability to easily make a rough sketch with the dimensions marked on it. In actual practice even a workman seldom has occasion to make a drawing that is exact in scale and perfect in detail. A sketch which represents the outline, the relative position of the parts with reasonable clearness, and has the dimensions marked on it leaves the pupil time for other work. If the course is for the purpose of making a finished draughtsman, more care should be devoted to the development of ability in the making of drawings for their own sakes.

The practice in a good many of the European schools is to have pupils make freehand drawings with the dimensions marked on, and afterwards make reasonably accurate drawings to scale with the dimensions marked on.

IT DISCIPLINES THE EYE AND HAND.

While Drawing is fundamental to all industrial training, the use of drawings by workmen is required in only a few occupations or industries. Many skilled craftsmen have almost no occasion to make drawings, and little occasion to read drawings. As for example those engaged in the occupations for the production and preparation of foods, those engaged in the chemical industries, those engaged in the boot and shoe industries, those engaged in the clothing industries, those engaged in the agricultural, mining and fishery industries. Ability to draw well and read drawings easily is of the highest technical value in the machinery trades and the building trades.

However, Drawing should be part of an individual's equipment as Writing is. It has so many uses apart from the application to the particular occupation and it trains the powers of observation so thoroughly that it has a high value as a disciplinary subject. One of the benefits is the making sure by practice of the co-operation of a practised eye and a practised hand. In this sense it is well to bear in mind that perception and expression are not two faculties but one; each is the very counterpart and correlate, each is the very life and soul of the other.

FOR YOUNG CHILDREN.

The authorities with whom the Commission discussed this matter in other countries, and who have most knowledge and experience, believe that Drawing is one of the most valuable elements in the education of even the very young. In only comparatively few schools has it yet been given its due position. It is still regarded by parents and teachers as an extra subject, an educational ornament, accomplishment or luxury, of little practical use except for the few who intend to become artists. On the other hand, where children are given opportunity and guidance towards representing their mental images in Drawing, the lesson is a delight, a discipline and a benefit to pupils and teachers.

While there is a good deal of difference in the aptitudes of different children, practically every child possesses the power to draw, a power that only requires educating to become both useful and delightful.

At Munich the objects sought by the teaching of Drawing in Continuation Classes as described in the lesson plan published in 1910, are as follows:—

The development of the power of obtaining knowledge by means of the eyes, of the power to give expression graphically to this knowledge, the promotion of the habit of observation and of aesthetic feeling. An hour a week is given to drawing in all classes from the first, that is, the lowest, to the fourth; three hours for boys and two for girls in the fifth, sixth, and seventh; and four for boys, and two for girls, in the eighth. Drawing is regarded as having all the importance of many different kinds of language. It is not treated as a separate subject, but as one which is almost as much inter-mixed, as is speech, with other subjects.

Instruction in handwork aims at the development of accurate elementary skill in the use of the hands through the execution of simple work in wood and iron. As far as possible, all the objects which are necessary for the courses of geometry are to be made in the school, and also those which are needed for chemical and physical experiments. For this purpose the class teacher and the giver of technical instruction must take counsel together.

DRAWING IN RELATION TO DESIGN.

In the Kindergarten at Hawick the pupils weaving with the strips of paper were directed to examine the designs they made, to see whether the design or pattern could actually be woven in a loom. When even such young children were doing their plaiting or weaving for the purpose of producing a design which could be repeated in products for sale, their interest was greatly increased and their attention and imagination were led on towards further effort and better work. The utilitarian is not the major motive with children, but it supplies an incentive which should not be overlooked. It supplies an incentive all the stronger to young men and women who are preparing for their vocation.

In the collection of Industrial Art brought by our Commission from Glasgow there is a valuable feature which might easily be introduced into any school, and yet it contains the germ of three separate arts and crafts. It consists of three parts: (1) a simple black pencil drawing on white paper, the subject being a bird; (2) the same outline cut, carved or engraved on the smooth side of a small piece of linoleum; and (3) the reproduction of this cutting or carving in printer's ink on a piece of wrapping paper, the pressure having been made by putting the linoleum "engraving" in an old-style letter-press.

(1) We thus have a drawing or design—the artist keeping constantly in view the fact that his lines are to be copied in carving or engraving, hence must be made simple, strong, expressive. This constant thinking of the material reproduction not only maintains intense practical interest in the young "artist," but it keeps his mind and hand down to the practical industrial problems—adaptation of means to end, cost of material, effectiveness of result.

(2) We have the carved or engraved reproduction of the bird, and the similar holding-down of the engraver to the industrial problems of material, and how to manipulate it so as to produce the effect of light and shade, of line and solid "body" of ink; of depth of cut necessary to produce proper effect.

(3) Finally we have the finished product, involving judgment as to quality, color and thickness of ink; its method of application; the laying on of the paper;

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the pressure required for the printing process, and the peculiar "upside down" appearance of the engraving, which must be held and looked at as is printing type—a reversal of the method of ordinary reading.

A boy who could manage the three stages of this work would have become familiar with the view-point, as well as some of the technical problems, of the designer, the engraver or modeller, and the printer or lithographer. And all this at a cost of a few cents for materials used, and a few dollars for an old letter press.

THE STUDY OF COLOURS.

One point which has impressed the Commission is the great improvement that might be made in the teaching of these subjects and the interest that might be added by the introduction of new material from time to time. For example, the study of the primary colours could and should be undertaken when children are quite young, instead of leaving it to be taken up as a scientific study in the High School, when the children who most need it are not present. The scientific terms need not be used, nor the refinements of "tones" and "tints" dealt with. But nothing could be more fascinating to a child than the display of bright colours; and these, if properly handled, can be used in laying a foundation of taste in house furnishing, in architecture, in gardening, and in all the arts, the so-called "Fine" as well as Industrial arts.

As children learn the seven notes of the musical scale, they may learn the colours of the chromatic scale. A "chord" can be struck with the three primary colours—yellow, red and blue—and the relation of these shown to the present-day art of 3-colour printing by which natural objects can be presented in their true colours and tints, as seen in coloured picture-cards. At almost any printing office it would be possible for teachers to procure specimens of each of these three printings separately; then the result of two—red upon yellow—and finally that of the blue upon both, or the completed product. Passing on from this, the teacher by simple talks and illustrations could show the intermediate colours and their relation to the primary ones.

While dealing with this problem of colours, the children might be shown that though white and black are not "colours," yet they are of great importance in art industries such as printing, lithography, etc., and in drawings for architecture in which they are known as "light" and "shade"; also in drawing in the round, in which the essence of the beauty is the distinction between light and shade.

Dr. Montessori has added much to the value of her didactic material by the introduction of the bobbins of silk threads, of which there are 8 colours and 8 gradations or shades of each. The "game" of distinguishing these and rearranging them, or picking them out from memory after a single "observation", is most exciting and at the same time profitable to the children, who at seven years of age learn to do what would puzzle mature art students and textile workers. Such a collection of fascinating colours could be procured by any school for a few dollars.

BASES OF BEAUTIFUL DESIGNS.

Familiarity with designs which have won for themselves general recognition as being appropriate and beautiful, will enable the student to enjoy good taste, to think along such lines, and ultimately to produce designs with similar characteristics of suitability and beauty for the particular purpose for which they are designed.

Since natural objects, such as flowers, leaves, trees, some birds, and some insects are pleasing to the eyes of nearly all people, Schools of Design usually begin their pupils by letting them draw such objects. After they have acquired some considerable ability in that, the pupils are directed to put the outline of the object in conventional form. The repetition of such conventional forms properly arranged usually results in a well balanced and pleasing design, the fundamental balances and symmetry resting upon qualities which are inherent in the object of nature. Making fantastic contortions of lines does not lead to designs which are acceptable, and does not develop power which can be used as an asset for earning wages or for advancing the good taste of those whom the objects serve.

DRAWING IN RELATION TO ART.

A good deal of confusion exists in the minds of teachers, parents and pupils as to the difference, if any, between Drawing and Art. If Art is taken to be the beautiful expression through material forms of some concept of the mind, then Drawing is an essential for the production of pictures, paintings and sculpture. It is also essential to the profession of architecture. Drawing should not be followed by pupils in schools of Industrial Training and Technical Education for the purpose of qualifying the learner to produce works of Art in the form of pictures or paintings. The exceptional few who have talent in that direction should have opportunities for training in order that they may be able to apply such talent as they possess. No one recommends the teaching of Reading or Writing for the direct object or specific purpose of making orators or writers in the sense of those who produce literature. Reading and Writing are useful arts for the purpose of communicating, recording and acquiring information. The few specially endowed to see best, not merely the material aspect of things but the meaning of things in an ideal and spiritual sense, become the painters, sculptors, writers, poets and dramatists.

THE VALUE OF MODELLING.

The following paragraphs are quoted from "Handwork Instruction for Boys" by Dr. Alwin Pabst:—*

*Translated from the German by Bertha Reed Coffman, A.M., published by the Manual Arts Press, Peoria, Ill.

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Experience teaches that artistic training cannot be given by means of lessons in the history of Art and by lecturing on works of Art, but above everything else it must be done by attempting to bring the pupil into personal relations with Art. This comes about most surely by his own activity in some field which stands close to Art and which leads finally to Art.

As a matter of course, the significance of Drawing is not depreciated by this fact; instruction in Drawing and practical work complement each other, and whenever the reformers of instruction in Drawing point toward a careful study of nature as the foundation for the entrance into Art, their efforts will be followed by instruction in Modelling, which completes and strengthens the instruction in Drawing.

Instead of solid, genuine work, we find false ostentation, imitation and trash. Not the excellence of work, but its cheapness is the desideratum, and with many people, even in the circles of the educated, the feeling for good workmanship is entirely lost. To acquire this feeling again and to win back Art for the people will be an important task for the future.

Under these circumstances the simplest object of utility becomes a work of Art, as the pictures and wood engravings of the old masters, of Durer, Rembrandt, and many others, show clearly. All of these masters had arisen from handwork. In fact, Art rests absolutely upon handwork. The best artists of the present time have seen this clearly and have turned back to the practice of the pure technique of handwork, so that Goethe's thought now seems to be verified again: "Handwork, which is acquired only in a limited way, must precede all life, all activity, all Art. More culture is gained by learning how to do one thing well than by attaining mediocrity in a hundred pursuits."

* * * *

Recently, in connection with the efforts towards training in Art, which have already been mentioned, modelling has come more into the foreground. The significance of this in the teaching of Drawing is universally recognized by the reformers in this line of work. However different the kinds of work named may at first appear, yet the same thought lies at the foundation of all, and upon this their significance for education depends: instruction in handwork is to develop and strengthen the talents of perception and observation and make the hand capable of constructing out of given material something which will serve a definite purpose. Instruction in Drawing has the same end in view. But while here the representation executed by the crayon or paint brush must be limited to a flat surface, instruction in handwork has at its command much richer material for representation.

ARTISTIC ONLY WHEN HUMANISTIC.

The humanistic quality of Art teaching, when the best methods are followed, is made much of at the Glasgow School of Art and other schools visited by the Commission. The following passages are transferred from the information obtained in "Conversation" with Mr. Newbery, Director of the Glasgow School:—

"The School aims to make art applicable to industries. The object is to give people good taste and skill and power to apply good taste to the things they make, and to their own occupations. The School starts with the supposition that every boy and girl has an instinctive desire to express himself or herself in terms of Art. The point is to define exactly what is meant by Art. Mr. Newbery starts with the desire of the child to decorate itself, to surround itself with forms which are copies or impressions of what it sees, and he endeavors to make the child observe and study nature, and through this desire of decoration applied to itself or its surroundings to cultivate that side of beauty. It is a very simple proposition—to recognize a certain power which the child possesses, and to deal entirely with that.

"The old idea was that the school-master had so many homeopathic doses of Drawing to compound and count, throwing in stuff of no use to man or beast, and to serve that out to the children. The new idea is that Art students, like anybody else, have certain powers and instincts to be cultivated and directed.

Mr. Newbery said the result had warranted the new point of view, and he believed there were now in the West of Scotland a large number of people teaching Art by endeavoring to develop this instinct in the child and directing its attention to the observation of nature from a purely artistic point of view.

"A rather interesting experiment in educating the public taste is being carried on by Miss Macbeth, an instructress in charge of sewing and embroidery. Director Newbery said that when he was a boy in Dorset, the 'Dorset Smock' with its sewing, and the artistic decorations of the dwellings, were features of that country side. The people who made these smocks never heard of the Art School in their lives, yet they made extremely charming works of Art on traditional lines. So good was their work that when he could get hold of an old smock he bought it for the museum of the Art School as a work of Art relative to the craft.

"In sewing as taught in this School of Art, School Mistresses receive practical illustration of the belief of Art Teachers in the application of Art to the things of daily life. Hitherto they had been doing designs based upon floral forms, etc., now they had evolved a scheme whereby, in the very act of joining two pieces of cloth together, the stitches were so arranged that they formed a kind of decoration, the result being a work of Art.

"It is a step forward if people can be brought to see that Art ensues by simply doing a thing in an artistic way, for they then begin to feel that Art is not something exterior to themselves, or a technique apart from themselves.

"The child is a better artist at the end of the process just described than before, because the Art has developed outwards—which all Art must do."

Mr. C. Hanford Henderson puts the question thus:*

It seems to me that the weakness in the Art Schools lies in focussing their attention so exclusively upon the work. Their redemption will come when they turn to human life and make Art a means instead of an end. The current methods have the same defect that the motive has. They are largely prescribed, systematized, made mechanical and objective. They are not practical and causational, like the methods of the Kindergarten and Sloyd. And the method reaches its extreme chilliness when art students are taught how to teach Art. The defect in method will be remedied when the motive is humanized.

It would not be appropriate or useful in this Section which treats of "Methods of Instruction" to present a summary or review of the Reports on Art Education. Such a statement could only be disappointing as to the meaning and value of Drawing, Design and Art in general education and in Industrial and Art Education. Particulars may be found in the special Chapters or Sections devoted to those subjects.

However, the methods of instruction followed in the Preparatory Art Schools and the Branch Schools of Art at Leeds, shed so much light on the principles which have been discussed that this Section is ended by a statement of them from the official publication.

LEEDS—ART SCHOOLS.

Grade I.

PREPARATORY ART SCHOOLS.

The Course of Instruction in the Preparatory Art Schools is specially designed to give a sound educational groundwork in General Subjects and in Art Study, which shall be based on examples having vitality and interest, so as to stimulate and encourage beginners to further progressive and more advanced Courses of Study.

*"Education and the Larger Life," published by Houghton Mifflin Company: page 153.

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Great importance is attached to the Courses of Instruction in the Preparatory and Branch Art Schools.

These courses are to be regarded as leading up to the more advanced instruction in Art and in the allied crafts given in the Central School of Art. To this end the Course of Study in the Preparatory Art Schools will be so arranged that it may help the student to acquire, at the beginning, that quickness of perception and accuracy of expression which are essential to all successful Art work.

To arrive at this, the student must first be taught to "see" i.e., to understand and correctly estimate the shape and proportions of any form placed in front of him, before he attempts to make a representation of it. The delineation of any form offers no difficulty when once that form has been thoroughly grasped and understood.

A portion of each evening may well be spent in the students judging, by the eye, the relative proportions of lines quickly drawn on the blackboard by the teacher, or of objects placed before the class, the teacher demonstrating the accuracy of their answers by measurement. Constant practice of this kind, and the rigorous suppression of all attempts at measuring before the decision has been arrived at, will soon produce the power to quickly and correctly determine the shape and proportions of even the most complicated form.

The importance of a well-trained memory to an Art worker cannot be too highly emphasized, and students should accustom themselves to draw from memory not only their class studies but also objects (and things) met with in their daily surroundings. They will thus provide themselves with an unfailing storehouse of material which will be of constant use to them in later years.

No lesson should be allowed to close without some remarks by the teacher which will increase the artistic perception and good taste of the students. It must not be forgotten that art exists not to produce useless objects, but to beautify the necessities and surroundings of our everyday existence. This can easily be demonstrated by taking articles of common use, and showing by sketches on the blackboard how the articles might be improved in shape and ornamentation. As regards methods of drawing, students should be encouraged to avoid the use of india-rubber and to practise executing their studies both in line and mass (i.e., by means of pencil or pen or by brush), the aim being to produce free, correct, and intelligent draughtsmanship. All drawings should be made from large diagrams or drawings on the blackboard, or from simple objects or leaf forms. On no account should small copies for individual students be used.

Occasional instruction might with advantage be given in Free Arm Drawing on a large scale with chalk on the blackboard or with charcoal and chalk on brown paper. The students might also assist the teacher in the preparation of the diagrams and illustrations required in the lesson. The application of simple scales as the basis of draughtsman's work is recommended, and simple geometric constructions might be worked and used as the basis for elementary ornamental arrangements of the freehand studies previously drawn. These arrangements may afterwards be tinted with flat washes of colour, the teacher using the exercises as the means of introducing the elementary principles of colour harmony and contrast.

Students will not be allowed to produce works for the adornment of their homes or the decoration of their friends. They will be expected to follow a course of serious study which will serve as the groundwork for their future advancement in Art and its applications to industry.

It is through the lack of this thorough grounding that many students have failed to realise the promise of their early abilities and have found that their want of knowledge of the fundamental principles of Art has seriously hampered them in their career.

Grade II.

BRANCH SCHOOLS OF ART.

The subjects of instruction include:—

- (a) Drawing of common objects in daily use, with concurrent exercises in Memory Drawing.
- (b) Elementary plant form from Nature and its application to elementary design. Geometrical exercises with relation to design. Exercises in lettering with brush and pen.
- (c) Light and shade from casts, etc.
- (d) Elementary modelling in Clay.
- (e) Elementary Woodcarving.

The Course of Instruction is designed to lead directly to the Higher Art Instruction given in the Central School of Art. Its aim, in the first place, is to make the student proficient in the handling of the various methods of artistic expression, i.e., in the flat by line or mass with point brush or stump, and in the round by clay handling, in fact, to equip him with the means of easily and intelligently expressing his artistic intentions in a variety of ways. In the second place it is planned to increase the student's perception of the laws and principles of good Art by bringing before him their occurrence in nature and in ornament. It must not be forgotten that these lessons are to be regarded as means towards an end—the practical application of Art knowledge to industry—consequently the student should be encouraged to constantly compare his work with the productions of manufacturers and to note any special artistic or practical qualities in such productions. It should be pointed out that the principles of his own elementary studies are applied in the manufactured object in a more advanced degree, and that both are founded on the same natural laws.

No effort is spared to help the student to realize that his work in the Branch School of Art is in direct relationship with the work of the Central School of Art.

This is aided by the arrangement of occasional special exhibitions of advanced art or craft work in the Central School of Art, and by lectures and demonstrations by the principal and teachers of the Central School, at which the students in Branch Schools will be allowed to attend.

Loans of examples of advanced work done by pupils in the Central School are made to the Branch Schools, so that high ideals and a high standard of accomplishment may be constantly before the students. It is hoped by bringing out clearly the connection between the Branch Schools of Art and the Central Schools of Art that students may realize and appreciate the possibilities of advancement in Art Work offered to them, and that by thus securing definition of aim and continuity of purpose distinct benefit may accrue both to the individual and to the city.

SECTION 5: QUALIFICATIONS AND TRAINING OF INDUSTRIAL AND TECHNICAL TEACHERS.

In the organization of Technical Education perhaps the most important consideration and the one of the greatest difficulty is to find a supply of well-trained and competent teachers. The work of the Technical Teacher is to impart a knowledge of the subject which he teaches to his pupils, and for this purpose he must understand not only his subject but also the range and the limitation of the capacity of his pupils and something of their interests. He must also, for many parts of the work, be able to direct the pupil in the practical operations in such a way that he will profit by the experiences.

A point on which there is much discussion and much disagreement is whether Technical Instructors should be persons who have gone through a course of training in the principles and art of teaching and have supplemented that by having gone through a course of instruction in practical industrial work, or whether they should be practical workshop or scientific experts who have taken a short course of training in the art of teaching.

In the teaching of pupils under 14 years of age the trained teacher seems to be required and to have more success than one whose qualification is chiefly that of having skill and mastery in the practical operations, for in elementary work the mechanic is not likely to see the educational side; on the other hand, for pupils over 14 years of age a master of the mechanical or trade side appears to be very necessary. He readily secures the confidence and even the admiration of the pupils by any ability and skill which he is able to show in handling tools and materials.

FROM DR. SEATH'S REPORT.

Before presenting a brief statement of the provisions for the training of teachers which exist in the several countries visited by the Commission, a statement of the question is given from the report by Dr. John Seath, Superintendent of Education for Ontario, on *Education for Industrial Purposes*:—

A. THE QUALIFICATIONS OF THE TEACHERS.

Special necessity for training.

In any scheme of education, the question of the qualifications and training of teachers is a basal one, and it is especially so in the case of industrial and technical education, which, being in

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most respects a specialized form of education, requires teachers specially trained. Without teachers so trained, it would be useless to attempt to put into force programmes of study, be they ever so suitable. In all the European countries I visited, especially in Germany, provision is made for training such teachers, and inducements are offered them to avail themselves of it. Even in these countries, however, this is the part of the organization that often lags behind. Wherever industrial education has proved to be unsuccessful, its failure, I was invariably told, was due chiefly to defects in the teaching.

For Technical High Schools.

For technical high schools we must have technically trained graduates—men who have taken up science and mathematics as well as the shop work from the industrial point of view, and who are pedagogically fit for their work.

For Special Industrial Schools.

For special industrial schools competent workmen of the foremen grade are no doubt available; but, to be efficient instructors, these require special training; and for the complementary sciences, mathematics, and English, specially trained teachers will also be necessary. Most of our workmen do not possess the necessary theoretical knowledge of their trades; their general education is too often defective; and they have, of course, had no pedagogical training.

For General Industrial Schools.

For our general industrial schools in particular, we must have teachers who know and can teach the other subjects of the course, in addition to and in correlation with the drawing and the wood and metal work which have so far been the mainstay of the manual training departments. In this class of school, satisfactory results are best obtained when the related subjects are taught by the same teacher. At this stage he alone can correlate them properly. The department system is, however, often followed; and, when there are a number of teachers on the staff who act together under a strong and watchful principal the system appears to produce good results. But for a good many years the staffs of most of the schools will be small, and it will take time to secure generally an industrial outlook.

Manual Training Teachers not qualified.

For this reason it should be clearly understood that the manual training teacher is not now fully qualified for a position in an industrial school. We need, accordingly, to supplement his present education and to provide for that of the teachers of the technical and special industrial schools. For the former, the summer school would probably suffice; for the latter, ampler provision is indispensable.

IN ENGLAND.

In England the Commission did not learn of any special institutions or series of classes conducted for the purpose of training teachers for Industrial and Technical Education. The Technical Institutions themselves and the Departments of Applied Sciences of Colleges provide instruction for those who may be Principals or chief officers of instruction in the Technical Schools of higher grade. Some of the teachers had also had long and successful experience in practical work in shops or factories.

A sufficient supply of teachers required for Evening Classes is available from the ranks of those who have become successful craftsmen and who have had experience of instruction in Evening Classes themselves, as well as experience in the workshops or drafting offices. The general opinion was that it was highly advantageous, if not entirely necessary, that the teacher on the practical or shop side of the work for Evening Classes should be a successful workman and have a good knowledge of the materials, tools, machines and products of his trade.

AT BARROW-IN-FURNESS.

Mr. George Grace, Principal of the Technical School at Barrow-in-Furness, was good enough to have a conference with the Staff of the School on this subject

and to furnish the Commission with a brief statement of their opinion in regard to the matter. That was as follows:—

The problem of providing the best kind of teacher for Technical Schools is not one which can be solved by one method alone. The subjects usually taken in these schools vary so much in their nature and in the kind of qualification necessary for their successful exposition that it is advisable to consider the problem under at least two heads.

A. Certain subjects, of which Mathematics is the most important, require clear thinking and thorough methods of teaching rather than extensive technical knowledge, and generally the best teachers are those who have been trained to the teaching profession but whose tastes lead them to take an interest in the industrial applications of their subject.

The only assistance needed by these teachers is in the collection of the right type of examples needed for Technical purposes and occasional assistance by some one with fuller technical knowledge.

B. Other subjects, such as Machine Drawing, Technical Electricity, Building Construction, etc., which deal mainly with Technical knowledge, are best taught by men having considerable experience.

This is especially true of the advanced classes. Even here, however, it is necessary to recognize that successful instruction must be based on the scientific principles underlying the subject, and it is essential that the teacher should have a thorough grasp of these as well as of the empirical knowledge to be gained in the shop.

Very few of these men are likely to make successful teachers without some training in teaching method. Where possible, they should spend some time working under an experienced teacher who should hear the lessons given by them and have authority to criticize or suggest improvement in method.

To take men straight from shop work and let them commence teaching without some training is likely in most cases to end in disaster.

At the same time, it must be borne in mind that there are exceptional cases where men seem to have the ability to teach well without any such training.

Also, that more skilled teaching is necessary for elementary students than for those more advanced, and that a man with the requisite technical knowledge may make a good teacher for advanced classes who might be unsuitable for a class of beginners in the same subject.

IN SCOTLAND.

In Scotland the teachers for Continuation Classes are, in many cases, the teachers from the ordinary schools who have taken short courses or otherwise qualified themselves specially for carrying on work in Evening Classes. In Edinburgh, where the proportion of teachers is 122 Professional teachers to 299 Instructors who follow other occupations, the School Board has provided short courses of lectures and demonstrations of methods of teaching to help to qualify the practical instructors to present their subjects in the manner most suitable for the pupils.

IN GERMANY.

In Germany the teachers for the Continuation Classes are drawn from two sources: from the ranks of the Professional Teachers in the Elementary and Secondary Schools and from the ranks of those who are engaged in practical industrial occupations. Among the latter are many who have had the advantage of prolonged education during the time they were serving as apprentices and often for several years after their apprenticeships were completed. When persons who have taken such courses have aptness to teach and an inclination towards teaching they are among the best of Instructors.

The trend of practice in Germany is towards the teacher in the Continuation Classes and in other Industrial and Technical Institutions who devotes his whole

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time to such work. At the same time it is held to be important that such a teacher should himself be a master of the particular trade, course or occupation from which the pupils in his particular class or classes come. The ability to do the work of the trade well is esteemed of no less importance than adequate knowledge and ability to explain the nature of principles and their application.

There is no short cut by which a sufficient body of competent teachers for Industrial Education for all the industries and for all the people in the various levels of service can be obtained. Perhaps the best course of preparation is one whereby the teacher or the prospective teacher, during the whole period of education from the Elementary Classes onward, has been taught the subjects and work which he will be required to teach, and has been taught by such methods and in such a way as he would be expected to teach. Many persons will rely upon the recollection of how they were taught to a greater extent than they will depend on their own ability to translate into practice the principles of teaching according to which they were told to teach.

Until that condition had been reached, and it has now been reached in Germany which is abundantly rich in such persons, it was necessary to make special provisions for the training of teachers for Industrial and Technical Schools. Scholarships were provided to secure enough persons to take the particular courses provided.

SPECIAL COURSES PROVIDED.

Among the best of these were the Courses provided at Carlsruhe in Baden. Students from the adjoining State of Wurttemberg were, under certain arrangements, permitted to participate in those classes. (See Report on Germany.)

The authorities in several cities are either conducting or planning to establish a Special Course for Vocational teachers which will give teachers in training one year after their ordinary Normal Course is completed. Chemnitz is one of the cities where that is in progress.

Director Goepfert, at Chemnitz, said he preferred the teacher who had had long practical experience, plus some pedagogic training, to the academic teacher with little or no practical experience.

At several of the schools visited all, or nearly all, the teachers had been teachers in the Elementary School with a year or more of practical experience in industry.

Frequently special departments were directed by men of the highest eminence in their professions who were left free to undertake commissions outside the duties of the school. For example, in one city the professor of Architecture was also advisor to the City Council and the designer of many new buildings which were being erected in the city. In the Art Departments in the Central Institutions in Glasgow and elsewhere the Instructors are encouraged to engage in professional work outside their classroom or school duties. That is done in order that they may be kept in touch with the practical side of progress.

PROFESSIONAL TEACHERS AND HANDICRAFTSMEN.

The regular vocations or occupations of persons, who were employed as teachers in the Continuation Schools of Prussia in the year 1908, may be indicated as follows:—

In the Industrial Continuation Schools:

Professional Teachers.....	12,068
Handicraftsmen and others.....	1,978

In the Commercial Continuation Schools:

Professional Teachers.....	2,287
Handicraftsmen and others.....	191

In the schools of the Guilds and Unions:

Professional Teachers.....	469
Handicraftsmen and others.....	920

The regular vocations or occupations of the persons who were employed in the Industrial Continuation Schools of Bavaria were:

Professional Teachers.....	2,271
Handicraftsmen and others.....	541

These may be compared with the proportions in the Continuation Classes in the City of Edinburgh, which are as follows:

Professional Certificated Teachers.....	122
Handicraftsmen and others.....	299

It will be observed that the ratio in Edinburgh comes somewhat close to the ratio in the Schools of the Guilds and Unions in Prussia.

FURTHER PROVISIONS IN PRUSSIA.

Since the visit of the Commission to Germany a circular has been issued by the Ministry, to the Presidents of all the Provinces included in the Kingdom of Prussia, setting forth that it was intended to institute a course of training for teachers in Industrial Continuation Schools, beginning in 1913. The course is to be held in Berlin, will last one year and will be terminated with an examination.

The subjects taught will include Pedagogy, with special reference to the organization and methods of instruction in Continuation Schools, knowledge of Business Methods, Citizenship, and the elements of Technical Drawing. Admission to the course will be limited to:—

(1) Engineers and artisans who have received a good general education and have done at least three years' practical work. Preference will be given to those who have already taught in a Continuation School. A knowledge of foreign languages will not be required, but credit will be given for a thorough mastery of the German language, Literature, and History, as well as some acquaintance with the economic and artistic questions of the day.

(2.) Teachers who have already passed the second professional examination and who have studied some industrial or technical subject, and have some experience in a Continuation School. This latter condition may be waived in

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special cases. Preference will be given to candidates who have had practical experience in some branch of industry.

(3.) Other persons of a good general education who have already taught in a Continuation School and have done practical work.

Candidates for admission to the course must be not less than 24 nor more than 35 years of age. The fee for the course is 60 marks; this may be remitted in necessitous cases, or a scholarship may be granted where this has not already been done by the locality from which the candidate comes.

As the number of places for the course of training is limited, the passing of the entrance examination will not necessarily admit to the course, but candidates will be chosen according to the place taken by them and according to the date of application. Those who pass, but for whom there is not room, will be allowed to enter later without again taking the entrance examination.

IN THE UNITED STATES.

A course intended to fit Elementary Teachers for teaching the industrial work in the Trade Preparatory or Pre-vocational Schools has been begun in connection with the State Normal School at Fitchburg, Mass. Six months of Method Work is provided in all subjects taught below High School Grade, with opportunities for observation in all the grades.

Four afternoons a week are devoted to various forms of Industrial Work and to directing small groups of pupils from 11 to 13 at this work. In the first year the attention is devoted to mechanical drawing, the writing of specifications, estimating costs, science subjects, study of the common applications of power to industrial work; psychology, child study, pedagogy, and the history of education are taken in connection with those. During the second year course the teacher in training is given an opportunity to gain some experience and to test his ability in teaching, management, etc., by taking full charge of a classroom for 14 weeks—six hours a day, five days a week.

Provision was being made at the time of the visit of the Commission to Teachers' College, Columbia University, New York, for special classes for the training of teachers. The work in both of these places is so new, however, that no information can be obtained as yet as to the success of the efforts made.

OPINIONS OF LEADERS IN INDUSTRIAL EDUCATION.

The opinion of Mr. David Snedden, Commissioner of Education for Massachusetts:

We have reached a stage in the development of vocational education for boys when the greatest single handicap is the absence of administrators qualified to organize such education and of teachers trained to carry it on.

Not long ago we imagined that any teacher could get results in a vocational school. Now we know by sad experience that only men who have themselves had successful shop experience can be efficient teachers of vocations to boys.

Men having only the equipment given by Technical Schools cannot as a rule successfully teach machine shop practice, electrical working, plumbing or printing. All these lack something which only experience in productive work can give. But the mechanic, merely as a mechanic,

is not necessarily a teacher. Teaching ability is sometimes a gift, but more commonly it is in some part a product of experience and training in the art of teaching. Our Vocational Schools, it is now clear, must be taught by persons whose first qualification is to be found in their mastery of a craft and who have somewhere added to this some mastery of the art of directing learners and of imparting knowledge.

The opinion of Mr. Charles R. Allen, Agent for Industrial Education under the Massachusetts State Board of Education:

The most efficient scheme of getting industrial teachers is to take persons who have already secured their trade experience by entering the industry and working in it for some time without any thought of ever becoming teachers. I believe the person most likely to make a successful industrial school teacher is a person who entered industry fairly young and whose ambition and thoughts have been turned for a number of years to securing the mastery of that trade, to securing promotion in that industry and to developing the efficiency and the intelligence which lead toward promotion. A young man, for example, of pleasing personality, who entered an industry at 15 or 16, has worked his way up to a foremanship, and kept his intelligence alive by Correspondence Courses, Evening School Courses and reading, is to my mind the best possible material out of which an effective teacher can be made. If after this period of 8 or 9 years of training he decides that he wishes to enter teaching, a course which will deal most efficiently with him is, I believe, the course most likely to furnish us with efficient teachers.

The opinion of Miss Mary Schenk Woolman, President of the Women's Educational and Industrial Union, Boston:

Adequate teaching in Trade and Vocational Schools for girls requires, in truth, a new kind of teacher with a new kind of preparation. Courses at present in the ordinary normal schools are entirely inadequate to meet the need. The trained Public School teacher cannot successfully teach skilled trades by having solely a short additional training in trade processes, for she knows nothing of workroom and business requirements and is academically predisposed. Neither does trade experience of itself make a good industrial teacher, the difficulties being (1) a narrow view point of the purpose of the training and the method of conducting it, (2) a one-sided and even prejudiced interest in the social, economic, labor, and industrial questions of the day, and (3) an over emphasis on the product rather than on the pupil.

The beginning of a few Trade and Vocational Schools on new lines is making some points clear as to the desirable preparation of the teachers: (1) The training of teachers for Industrial Schools for girls must combine the preparation of broadminded, industrially intelligent women with the experience of the real trade worker; (2) The following subjects should be given—while the list seems formidable the arranging of the work is entirely possible and has been tried already—household arts work, with a background of art and science; health and hygiene; trade academic education; trade-art education; business efficiency and forms for shop organization; practical social, labor, industrial, and economic knowledge; and psychology and pedagogy for a basis of teaching founded on philosophic thought. Accompanying these subjects must be investigations of industries employing women and also of living conditions of working girls under varied circumstances, trade experience in Normal School business shops followed by real work in trade itself, and practice and assistant teaching in Industrial Schools of various kinds.

FOR RURAL SCHOOLS.

This question has been discussed at some length in the chapter on Education for Rural Communities. (See page 285.)

Considerable experience has already been had in Canada as to the value of short courses for the preparation of teachers for the more elementary parts of education which lie on the borderland of Industrial Education. Short courses have been provided in Manual Training, in Nature Study, in School Gardening and in Household Science. Typical of the best of the courses now provided is that at the Macdonald Institute at the Ontario Agricultural College, at Guelph.

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At first under the Macdonald Rural Schools Fund, scholarships were given to a certain number of teachers from each of the five provinces east of the great Lakes which enabled them to take a course of five months at the Macdonald Institute. That work was successful, but it was intended only as an expedient to meet the situation at a few places until pupils coming through Rural Schools and afterwards through High Schools or Academies, when they came to teach, would teach as they were taught.

Later on special instruction was provided in those branches at practically all the Normal Schools in the various Provinces.

However, when all that can be done, in the way of preparation of Professional Teachers for Elementary Rural Schools, has been accomplished there still remains the fact that there are aspects and features of agriculture and housekeeping which the ordinary teacher is not competent to present to the classes from the lack of practical experience. That raises the question whether all the education which has been demanded of the school can be arranged for by the teacher alone.

It belongs to the parents and others to discharge their share of the responsibilities for the education and training of the children in the homes and at work; but as changed conditions are throwing more and more the obligation of education in early life upon the school and the teacher, it appears to be necessary, at least for a time, that the services of the Professional Teacher should be supplemented by assistance from Non-Professional Instructors on the vocational side of the work of the school.

The testimony given to the Commission, in many of the Provinces, indicated a willingness on the part of some of the leading farmers, to devote one or more half days a month, to take children over a farm and give them information in a form which they would understand and which would increase their interest in and ability for rural occupations.

SOME CONCLUSIONS.

There is no short cut by which a sufficient body of teachers for Industrial Education for all the industries and for all the people in the various levels of service can be obtained. Perhaps the best course of preparation is one whereby the teacher or the prospective teacher during the whole period of education from the Elementary Classes onward has been taught the subjects and the work which he will be required to teach and has been taught by such methods and in such a way as he would be expected to teach. Many persons will rely upon the recollection of how they were taught to a greater extent than they will depend on their own ability to translate into practice the principles of teaching according to which they were told to teach.

The Commission is of opinion that the training of persons, who are not professional teachers, for work in Industrial and Technical Schools might be begun and advanced by the following means:—

1. The establishment of classes for Foremen, and other intelligent and highly skilled workmen, should be undertaken for the first object of giving such men

greater qualification for their own occupations. Such classes would primarily be for the benefit of those who attended them. Out of the number of persons who might be expected to attend, doubtless a number would be revealed who would have some natural aptitude for teaching, and who during the following year would be disposed to teach in the Continuation Classes and to teach to some extent after the method by which they themselves had been instructed. To begin these classes it would be necessary to secure the services of a few men who had had successful experience in such work.

2. At the same time inducements should be offered to professional teachers, who already had a knowledge of and a taste for Industrial and Technical work, to spend some time in practical work in workshops or factories similar to those of the place in which they would afterwards teach.

3. By a combination of the two methods in a short time it would be possible to secure a local supply of men competent to conduct Continuation Classes and the Trade Classes in Day Technical Institutes. Men with more systematic and thorough training would be required for the higher places in Technical Institutes and Middle Technical Schools.

SECTION 6: BUILDINGS, EQUIPMENT, MUSEUMS AND LOAN COLLECTIONS.

THE BUILDINGS.

The essentials of a school building are that it should be well lighted, well ventilated, commodious enough for the teachers and pupils and their work, and comfortable in respect of temperature. The requisites of the equipment for instruction are that it shall be serviceable and adequate for the training of the pupils, for illustrating the principles of what they ought to understand, and for encouraging them and stimulating them to do their best. It would be quite impracticable and it would not be likely to be useful to report in detail the character of the buildings or the extent of the equipment found in the Industrial and Technical Schools which were visited. Every school requires a building and equipment to suit the particular needs of the community and the pupils. A good teacher and earnest pupils can make progress without very much equipment although the provision of suitable equipment is most advantageous.

The effect upon pupils of all ages of the appearance of the building, its arrangements, its intrinsic qualities of dignity and beauty and of the placing and use of the equipment are not to be overlooked or neglected. The appropriate housing of a great public interest like education has its effect on public opinion as well as upon the minds of the pupils who attend. One may ask the question whether the maintenance of religious exercises would have been so general and effective throughout the ages if the churches had not been in some cases housed in beautiful and enduring cathedrals.

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EXAMPLES OF EQUIPMENT.

A few examples only of what was seen are cited as representative of scores of others which might be mentioned. Nearly all the more recently equipped Municipal Institutes and Technical Schools in England had a liberal provision of equipment to illustrate Mechanics. Miniature and in some cases full-sized apparatus were provided to illustrate the principles of motion and force exerted in such ways as are common in industries. These were not only provided plentifully but were evidently used a great deal.

In one of the Schools of Switzerland an enlarged model of the parts of a sewing machine was used. It could be taken apart and put together again by the pupils, who thereby obtained a clear idea of the mechanism and motions whereby the driving power was applied to the needle and the thread.

In all the textile schools single looms were provided. These could be taken apart and put together again by the pupils. Power weaving looms were used in the same way at the Textile Institute at Lowell, Mass. The pupils by such work gain power in not only the weaving of cloth but in the ability to understand the mechanical operations whereby the warp and woof become fabric to be afterwards finished into cloth.

The taking apart and putting together again of looms and other machines is usually a part of the regular Course of Study at Textile Schools. The making of drawings of the main parts of the machines and showing the relation of one part to another is frequently included in the Course.

At the Mining School at Cowden Beath, Scotland, the equipment included a complete model of the ventilating system of a Coal Mine showing the intake of the fresh air, the circulation through the various levels of the mine and the return.

At the Technikum, at Chemnitz, a steam engine for instruction was specially fitted with valves in such a way as to enable the students to test and record the loss in power and efficiency which would result from leaky valves, leaky packing or other defects such as might arise from prolonged wear or neglect in factory use.

At the Technical High School, at Charlottenburg, specimens of bridges of different designs, completely constructed to scale were provided in the museum. In this institution the models and specimens were in sufficient abundance to fill completely all the rooms of such a Technical School as would provide accommodation for all the work of 200 or more pupils in Canada.

SIMPLICITY AND SUITABILITY.

It is to be borne in mind that care should be taken that the equipment is entirely subordinate to and serviceable to the further growth, development and progress of the pupils. Excessive equipment or an equipment that is arranged to turn out desired results without the exercise of observation, examination, comparison, action or judgment by the pupil has a tendency to make the pupil himself mechanical. The domination of the mechanical and the material

must be prevented and guarded against at all points if the object of the training and education is to be attained, viz., the development of the capacity and the power of the individual.

Liberal equipment is useful to the younger and less advanced pupils chiefly to illustrate facts and principle. Its chief use for older and more advanced pupils is to give them the wherewithal to work effectively. There is no clear line of demarcation between these two, but the consideration of them will enable those responsible for the equipment of schools and classes to make adequate provision without waste. An example: A witness before the Commission at Truro, Nova Scotia, with long experience as a locomotive engineer, told of teaching firemen and other learners the uses and relations of the various parts of a locomotive engine by a simple model in tin of the main parts which could be easily taken apart.

MUSEUMS AND LOAN COLLECTIONS.

In the Continuation Schools of Germany and also in the Middle Technical Schools for special Industries and the Technical High Schools, very liberal provision is made in the museums for instructional and illustrative materials.

Frequently arrangements are made in connection with some Central Museum, to provide loan collections of its specimens, which are obtainable by other places for limited periods of time. By the organisation of such circulation, practically the whole of the working part of the contents of a museum can be seen at the various branches or smaller places to which these loan collections are sent. The plan is in extensive operation in connection with Art Schools in England. An example may be taken from the Museum of the Embroidery School at Plauen.

AT PLAUEU.

Examples of excellent specimens of products, similar to those from the occupations or trades with which the classes or schools are concerned, are purchased from time to time including ancient and modern, local, more distant and foreign. Students are encouraged to study these, with the view to analyzing and understanding their elements of beauty and the qualities that have made them serviceable and attractive.

Students, workmen and superintendents and owners of factories are permitted to borrow specimens to make such examination of them as they may see fit, to make drawings and to use them either for new designs or to reproduce them in modern materials.

The Director of the Museum is encouraged to refresh his collection every year, by the best specimens he can obtain, and relatively to other expenditures, liberal provision is made for this purpose.

AT NUREMBERG.

At Nuremberg courses of popular lectures are given in connection with the Museum. These provide information regarding new inventions likely to prove

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useful for trade purposes. Working men and women attend these in large numbers. Chemical research is pursued in connection with the museum. Students desirous of conducting experiments for research purposes receive gratuitous instruction from the professors. A collection of specifications of patents, carefully tabulated and open to all enquirers, is a special feature of the Museum. The Museum also has a Statistical Department containing a history of all the industries of the State of Bavaria arranged in classes and giving full accounts of all the processes of manufacture. Other details such as the owner may be willing to furnish are represented, such as the number of machines used, trade marks and patents owned, power employed, number of workpeople and annual output.

The Trade Museum at Nuremberg and its work may be taken as illustrative of similar museums in other States.

SOME RECOMMENDATIONS.

The Commission is of opinion,—

1. That there should be adequate equipment of teaching material and illustrative material in connection with all Industrial Training and Technical Education;

2. That in addition to the teaching equipment in the way of materials, instruments, tools, machines, etc., there should be a full collection of products, of designs, of machines, of tools, such as are used or may be used in the businesses that are carried on in the very best way;

3. That collections of such material should be loaned for periods from time to time to smaller places organized in connection with a larger centre for this purpose.

SECTION 7: SCHOLARSHIPS AND FEES.

The Commission is of opinion that where young workers, who are learning a trade, attend a Continuation School for one or two half days per week, it is in the interest and to the profit of the employer that such students should be paid wages for the hours of such attendance, at the same rate as they would receive for working in the shop or factory. The opinions expressed to the Commission by those who employ such apprentices were all to the effect, that the work done by the apprentices during the part of the week spent in the shop was of such a character and that their usefulness was so much increased, that the value of the apprentices to the concern for the whole week was greater when they spent one or two half days of time in a suitable Continuation School, than when they gave their whole time for the week to the work of the shop.

SCHOLARSHIPS.

Scholarships are provided for various purposes. Sometimes they are offered chiefly as incentives to pupils to do their best. They are given as rewards

for attentiveness, diligence and general good conduct and progress. These are frequently won as the result of good verbal memories. The Scholarships themselves usually provide for a sum of money. In case the pupil goes on to a higher institution and attends its classes they sometimes provide for tuition or tuition at reduced rates and sometimes a maintenance allowance. Sometimes they provide for a sum to enable the pupil to travel and observe and investigate conditions in other localities or in other countries.

In Scotland the Scholarships in connection with the Continuation Classes and Technical Education are given to equalize the opportunities to boys and girls and young men and women to take advantage of the instruction and classes provided by public authorities. When a young person has successfully exhausted the opportunities provided in the locality he may obtain a Scholarship sufficient to meet the necessary travelling expenses with some allowance for living expenses. Such a person would be thus put on a level so far as opportunity is concerned with the young people living in the vicinity if the institution or classes where the more advanced work was being carried on. In that way, without making it necessary for the people to subject themselves to any humiliation by proving poverty, all the young people who have ability and perseverance can obtain practically equal opportunities for pursuing their education to the highest extent.

The Scholarships available and paid annually in Scotland now amount to about £149,800, or about \$728,000. The bulk of the sum is awarded as Scholarships in connection with general Secondary and University Education but pupils for Technical Courses are receiving increasing amounts. (For further particulars see Reports on Scotland, Ireland, London, Denmark).

It is not suggested that Scholarships for identical purposes should be given in Canada, but it would seem to be desirable that Scholarships should be provided to equalize opportunities as far as possible, as between those who are within reach of a suitable Industrial or Technical School and those who through circumstances or location are not within reach of it.

The Principal of a school in Berlin said, regarding the grant of Scholarships to pupils who attended that institution: "that he did not know a case where either family, political, or church influence had been used to gain a scholarship for a pupil. The sole grounds of consideration were the needs of the pupil, the merits of the pupil and the aptitude and qualification which he had for profiting from further education such as the Scholarship provided."

CHARGING FEES.

The educational value is the one that receives most attention from educators. In so far as it increases the interest of the pupils it is of benefit to them in the Course. In some cases the fees are returned in full when the student has completed a certain percentage of the possible attendances. The stimulation to accomplish the number of attendances is not necessarily in proportion to the value of the amount to be returned. It is sometimes sought like the merit card for good

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conduct by a scholar, or like the ribbon or decoration of an Order by an older individual in the State, who has not lost his susceptibility to rewards that incite the immature.

The general opinion expressed to the Commission has been that charging fees to those who attend Continuation Classes from 14 to 18 years of age should be followed chiefly for the sake of the effect on the pupils themselves. In many places and cases, notably the Continuation Classes of Scotland, the fees charged to all students seventeen years of age and under are returned when the individuals have made at least 75% of the possible attendances at the classes for which they are enrolled.

In some communities and in connection with some schools the amount of fees collected form an appreciable source of revenue for maintenance. The tendency in the case of Continuation Schools and of all schools for what might be called the handicrafts, and the lower ranks of officials such as foremen in connection with industry, is to either charge no fees or charge such a small amount that it does not bar anyone from attending.

SECTION 8: CORRESPONDENCE STUDY COURSES AND TRAVELLING INSTRUCTORS;

Education by this means has some points of resemblance to the extramural work of Colleges and Universities whereby students are enabled to take a full course leading to a Degree without attending lectures or doing any laboratory work at the institution itself. The course of reading and study having been outlined, the student having done the work submits to examination and, if he passes successfully, obtains his standing.

METHODS OF CORRESPONDENCE SCHOOLS.

The Correspondence Schools took a similar course with students who could not attend Industrial or Technical Classes. The plan in the main was as follows:—When a course was to be offered on a particular subject or branch of work special writers prepared text-books. These text-books were not constructed in such a way as to present the subject in the order of its logical sequence of treatment as a whole. The matter was arranged in the order in which it would come to or be required by the worker in learning his occupation. Then when the student under the Correspondence Course came to any difficulty he was invited to write about it. An expert individual or staff examined his communication and sent him an appropriate answer. The answer was intended not merely to impart the information, but to indicate how the student could go about obtaining the information for himself on that question and similar questions that might arise.

A great many Courses have been provided in the effort to let the sequence of presentation of subject-matter be in somewhat close connection with the

progress which a young person makes in carrying on the particular occupation with which it deals. The principle which underlies this plan is in harmony with the principle which guided Dr. Kerschensteiner of Munich in providing Classes in the Continuation Schools for each important trade.

CORRESPONDENCE FROM STUDENTS THE WEAK POINT.

The testimony given to the Commission, by many men who had taken such Correspondence Courses, was to the effect that they got real good from them; that the Courses were arranged in such a way that they could follow them; and that when they took the trouble to write about a difficulty they always obtained prompt and complete answers. In many cases the students confessed they did not take the trouble to write about a difficulty; and the want of its removal prevented and discouraged them from completing the Course.

Most of the witnesses, who stated that they had taken a Course in a Correspondence School, said they had not completed the Course, but had derived benefit from it sufficient to cause them to say it was well worth while and that they had obtained value for the amount they paid.

When the subject-matter for any Course has been defined and arranged, some progress is within the capacity and power of almost any intelligent worker. However, more advantage and benefit would be derived by most workers if the Correspondence Course could be supplemented by visits or lessons from a Travelling Instructor. Such visits should be timed to occur with not more than one month of interval between them. Such a review as an Instructor could give, and such a survey of what was to come as he could present, would not merely increase the interest of the student but would enable him to do the work much better. Examples of this kind of work are now to be found in Wisconsin, in connection with the Correspondence-Study Courses and Extension Work carried on by the University.

CANVASSING FOR STUDENTS.

One reason for the marvellous expansion of the business of providing Correspondence Courses was the sagacious form of effort to secure students. The usual means of advertising and obtaining publicity were followed. Offices were opened in important centres, managers were appointed who acted as canvassers and personally commended the Courses to the residents and workers in their area. They took a leaf out of the book of the Life Insurance agents, and went after the business. Hundreds of young men, unaware of the Correspondence Schools, and indifferent to any help which might be obtained by such means, were induced by the persistence of the agent to take a Course and give the scheme a trial. Probably the agents received liberal commissions on the amount paid for each Course for which they secured a pupil.

The charges or fees varied according to the nature of the Course taken, usually from \$40 to \$80 for each Course. The payment included the books required, i.e., the books which contained the lessons or the Course, but not all the books which were valuable for supplementary reading.

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FROM DR. SEATH'S REPORT.

The report by Dr. Seath on *Education for Industrial Purposes* contains information regarding Correspondence-Study Courses, particularly by the University of Wisconsin, in terms so nearly similar to the notes and official publications obtained by the Commission that the following passages, including those relating to the University of Wisconsin, are taken from Dr. Seath's report.

THE CORRESPONDENCE-STUDY INDUSTRIAL AND TECHNICAL SCHOOL.

The Scranton Correspondence School, which is controlled by the International Printing Company of that city, with a capital of \$6,000,000, is probably the largest school of the kind in existence. Its advertising literature shows that in October, 1900, its Canadian agencies contributed \$180,000 to the yearly receipts. Most of this must have been collected from the workmen of the Dominion; most of it, also, must have been collected from the workmen of Ontario; and, as the industries of the Dominion are rapidly increasing, the total sum collected must now be much larger than that given above. A half a million of dollars is, I believe, now a moderate estimate, although some put it at a far higher figure. The school is maintained solely for the gain of its stockholders, and, like any other business house, it sends out "salesmen," who canvass the various districts into which the management has divided the United States and Canada, and even far New Zealand, Australia, and South Africa. When a high school inspector I met these salesmen more than once in hotel offices, where they were relating to eagerly listening workmen the advantages of the correspondence school. This company offers for workmen trade courses in drawing, lettering, sign painting, plumbing, heating and ventilation, sheet-metal work, boilermaking and shop and foundry practice; and technical courses in architectural drawing, civil engineering, electrical engineering, mechanical engineering, mining, steam and marine engineering, structural engineering, telegraph and telephone engineering, and textiles.

One of the chief reliances of the school is its list of text-books specially prepared for industrial work. The claim that the list is a good one is well supported. We also must have suitable text-books for all grades of our industrial schools.

The International Typographical School of Printing, at Chicago, is under the direction of the International Typographical Union's Commission on Supplementary Trade Education, and is supported by fees from students and appropriations from the International Typographical Union. The existence of this school under its conditions shows the value the workman attaches to the instruction given. Its object is to counteract the evils of specialization as practised in printing offices. This school is an institution with an educational, not a commercial, aim, and, I may add, is strongly favoured by the American Federation of Labour. In its report of 1909 this federation gives a list of seven other labour organizations that have undertaken a similar extension of education for their members, and takes occasion to commend enthusiastically such "supplemental technical education," and to report that it should be provided at the public expense.

The desirability of schools of this character was first suggested to me by some of the representatives of organized labour in the city of Toronto, and I have found on enquiry a very general desire on the part of labour men that a correspondence school should be provided in Ontario. It certainly appears to be reasonable that, in providing the workman with instruction, his convenience and necessities should be taken into account. Even when we have secured a system of day and evening industrial and technical schools, many will not be able to avail themselves even of the evening classes. There will also be small manufacturing centres—too many I fear—where it will be impossible to maintain evening classes effectively organized or evening classes at all.

CORRESPONDENCE-STUDY SCHOOLS AND THE UNIVERSITY OF WISCONSIN, MADISON.

The University of Wisconsin is a State-supported institution, its main revenue being derived from a two-seventh (2-7) mill tax. In addition to this, however, in recent years appropriations have been made for building and other purposes. The annual appropriation made by the State Legislature, including the tax and special appropriations, amounts to \$1,200,000. Each college of the University has its special staff.

UNIVERSITY EXTENSION DIVISION.

The University Extension Division is one of the co-ordinate colleges. It consists of four departments:

1. *Lecture Instruction Department.* University lectures are available for lecture courses or single lectures, commencement addresses, etc., in a large number of departments.

2. *Debating and Public Discussion Department.* This department issues bulletins, stating questions of live interest, gives affirmative and negative references upon them and lends libraries for preparing debates. Thousands throughout the State in High Schools, School Boards, Town Councils; and farmers' social and women's clubs, etc., have been assisted through this department.

3. *General Information and Welfare Department.* This department serves as the clearing-house for enquiries and for informal dissemination of useful and serviceable knowledge having a direct bearing upon general welfare.

4. *The Correspondence-study Department* is the one in which we are interested. The instruction in it is given in five main divisions as follows:—

- (1) Special Vocational Studies;
- (2) Elementary School Branches;
- (3) High School and Preparatory subjects;
- (4) Special Advance Work;
- (5) Regular University grade of work.

In the foregoing, thirty-five departments of the University are represented. These embrace 206 courses of study, the subjects taken by the correspondence students including nearly all that are offered.

As illustrations of the scope of the work done, I give the details of three of the grouped vocational studies:—

Mechanical Engineering: Mechanical Drafting, Stationary Engineering, Machine Design, Refrigeration, Heating and Ventilation, Power Plants, Gas Power Plants, Steam Engine and Boiler Operation.

Structural Engineering: Structural Designing, Structural Drafting, Bridge Construction, Building Construction, Masonry and Reinforced Concrete.

Electrical Engineering Lighting and Wiring, Car Operation Electric Railways Telephony, Central Station Operation, Dynamo Running, Power Transmission.

A large percentage of students taking mechanical courses pay fees through orders on their employers, in small monthly instalments, many at the rate of \$2.00 a month and some at less.

CORRESPONDENCE-STUDY DEPARTMENT.

The students in the Correspondence Courses come from the ranks of labourers, apprentices, farmers, skilled mechanics, clerks, salesmen, travelling men,

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stenographers, druggists, bankers, business men, home workers, club women, students, teachers, lawyers, clergymen, doctors, civic officials.

Some of the members of the University Extension Division are appointed for Correspondence-Study work alone and devote their entire time to it. Others divide their time between correspondence and residence instruction. Others again give most of their time to residence and the rest to correspondence instruction. The professors and instructors for any course in correspondence read the recitation papers and give the instruction in these courses. Those who carry on the work in industrial education subjects have by their previous training and experience, special qualifications, not only for teaching these subjects, but even for the production of suitable texts.

LOCAL CLASSES.

In addition to the instruction given through correspondence, professors and instructors from the University make visits to communities in which a group of students are working along the same line and there supplement the correspondence instruction with class-room lectures and individual instruction. In communities where local centres have been developed, the University has provided a staff consisting of a local representative or manager, usually of professorial rank, and instructors in such branches as have a sufficient number of students to warrant special local instructors, and field organizers to present the character of the University extension work to those who may profit by this form of instruction. These local classes meet in the local University head-quarters, in rooms belonging to school boards or public libraries, or in specially appointed class-rooms in a commercial or industrial establishment set apart and equipped by that establishment for University Extension teaching purposes. In one instance the owner of large business interests has supplied well furnished class-rooms and has equipped them with books for the students' use. He has also offered to pay the fees of all employees who complete courses of study.

THE PRESIDENT'S REMEDY FOR DEFECTS.

It is significant of the success of the scheme that of the total number who began work only about 4 per cent. dropped out before completing the course, and those who did so had good and satisfactory reasons. One of the well known defects of the commercial correspondence schools, such as that of Scranton, has been that so many students drop out. This defect President Van Hise realized shortly after the establishment of his University Correspondence School. I quote his words:

The extension movement at the University has developed beyond our most sanguine expectations; indeed has expanded day by day, and I see before it almost limitless opportunity. Correspondence work at the outset followed the model of the commercial correspondence school, but Director L. E. Reber soon saw that there were two defects in that system—the defect that each student was obliged to work by himself, and the defect that he did not come in contact with his teacher. These two handicaps are so great that only a small percentage of those who begin a course of instruction continue to the end. It requires a great deal of stamina for a man, after he has worked nine or ten hours in a shop, to sit down by himself in the evening, study a lesson and

write a paper; and thus a very large percentage of students in correspondence-study courses have in the past fallen out before the end is reached. To remedy these defects it was suggested that the artisans should be gathered into classes, and meet a teacher. Hence, we have instituted the travelling professor.

But in order to make this more successful, it was necessary to get the co-operation of the merchants and manufacturers. Therefore we came into Milwaukee and presented the case to the merchants and manufacturers of this city. Some of them said, we will give you an opportunity to meet the men in our shops; a number of them offered quarters for class-rooms; and some of them went so far as to say, we will pay the men for the time they are receiving class-room instruction. In Milwaukee at the present time we have more than 1,000 students doing vocational work in twenty different manufactories. Thus, the defects of correspondence work have been remedied, and instead of some ninety-five per cent. dropping out of a course before its completion, less than five per cent do so. Already we are told by the merchants and manufacturers of Milwaukee that the effect of this movement is seen in the increased efficiency of their workmen; that it furnishes them better-trained foremen, and in greater numbers.

ATTITUDE OF THE UNIVERSITY.

Although this department of the University has been in existence only since January, 1907, the registration had grown from 26 on that date to over 3,500. Of the latter number, nearly 2,000 are registered for special vocational studies.

President Van Hise's statement of the attitude of his University on the question of the extension movement for industrial education is well worth quoting; it is that of a State University which recognizes to the full its obligations to the people who support it:—

It is the desire of the University to fill the gap in the training of artisans—to do the work of the trade school until the trade school occupies the field; and when they do so fully, to take the artisans from these schools and make of them broader and better citizens; to give them an opportunity commensurate with their ability such as every citizen should enjoy in a democratic community, in a civilization where we do not recognize that one man is superior to another, and where we hold that the door of opportunity shall be open to all.

Nor is the University of Wisconsin the only University which has adopted an extension scheme. Within the past few years a number of other State Universities, of Chicago, Kansas, Nebraska, and Minnesota; and half-a-dozen others have introduced correspondence-study instruction on a similar basis, although, of course, they have not yet carried it so far.

TRAVELLING INSTRUCTORS.

Travelling Instructors were among the earliest of School-masters; and Canada has some satisfactory experience of their value. The large and important Dairy business was very greatly advanced by the employment of Travelling Instructors who visited the Cheese Factories and Creameries. That work was begun about 1884 by the employment of Professor Arnold, of New York State, by the Dairymen's Association of Western Ontario. It has been gradually extended and improved and has been regarded as so successful and beneficial that there are now over 30 such Instructors employed in the Province of Ontario alone, and about an equal number in the Province of Quebec.

Information in detail is given of the nature of the work of such Travelling Instructors for Rural Communities in the Report on Ireland and in the Chapter on Education for Rural Communities.

Travelling Instructors for Industrial Classes are employed by the University of Wisconsin in connection with its Correspondence-Study Courses and Extension Work.

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Travelling Instructors for specialized industries are employed in England, as for example in the boot and shoe making industry around Northampton.

Travelling Instructors are successfully employed in connection with the courses of the International Correspondence School, as for example in giving instruction in the use of air-brakes on locomotive engines and cars. Specially fitted cars are sent to Divisional points from time to time to be used in connection with the lessons.

SOME RECOMMENDATIONS.

The Commission recommends:—

1. That Correspondence-Study Courses be provided in connection with Provincial or Inter-Provincial Institutions for Industrial Training and Technical Education to serve workers in Industrial, Agricultural and Housekeeping occupations who are out of reach of classes.

2. That Travelling Instructors be arranged for to conduct Industrial Classes at intervals in small places where the population or attendance is not sufficient to engage the whole time of a teacher.

3. The employment of Supervising Instructors to visit small places where Industrial Classes are conducted and to assist any teacher of little experience to make the best of the time of the pupils.

4. That when Correspondence-Study Courses are provided by a Central Institution, Travelling Instructors should be provided to meet, from time to time, those who follow the Correspondence-Study Courses to explain such difficulties as might not be easily removed by correspondence only and to encourage them to complete a Course.

SECTION 9: CONCLUSIONS AND RECOMMENDATIONS.

GENERAL PRINCIPLES.

The Commission is of the opinion that Industrial Training and Technical Education in order to be of greatest benefit to individuals, to industrial development, to localities, to the several Provinces and to the Dominion as a whole, should be organized and maintained in accordance with the following principles:—

1. It should be under Provincial control and regulation.

2. It should receive financial support from individuals, from local authorities, from Provincial Governments and from the Dominion.

3. Provision should be made for active participation in its control, management and direction by individuals in the locality who would represent Industries as employers and employees. Agriculture, Women's Occupations particularly Housekeeping, Business and Organized Education.

4. It should provide educational opportunities for those who have gone to work and also for those who are able to return and to devote their time for

some months or years, as the case may be, to a course or courses of instruction and training.

5. It should make provision to ensure, as far as practicable, equality of opportunity for all preparing for industrial, agricultural and housekeeping occupations and for workers in such occupations.

6. It should be carried on in cordial co-operation with existing systems of education, and in such a way as to have the advantage of the use of existing buildings, equipment and teaching staff so far as these may be suitable and available.

EFFICIENCY BY FREE CO-OPERATION.

Any effort at control, by means of a proportion of members of the administrative body, based upon the relative contributions of money from Provincial and local sources, could not apply advantageously to work of this kind. The end to be sought is the most efficient and economical and suitable education which can be provided; and also the maintenance of local interest and the utilization of as much as possible of the local talent and the further equipment of that talent by the experience which the individuals would gain only by participating in the administration.

An instance: A statement made in this connection by Sir John Struthers, Secretary of the Scottish Education Department, is illustrative of much that came to the attention of the Commission in the countries visited. In substance he said that the Scotch Education Department would rather have a thousand men and women in Scotland thinking and planning and striving to make the courses of study and the education meet the needs of their own communities than have ten thousand implicitly doing what the Department directed.

Experience elsewhere indicates that it will be advantageous to leave the initiative, the control and administration of the general work of the school largely in the hands of the Local Authority. The Central or higher Authority should co-operate by putting at the service of the Local Body the full information which it alone could possess, and the benefit of inspection, counsel and advice by experts whom it only could employ. Supervision and inspection should all be directed to conserving and increasing local interest, and at the same time to maintaining high standards of work in the school, and raising these gradually as the pupils and teachers from experience are able to come up to them

TO FIT IN WITH GENERAL EDUCATION.

In order that there might be the least amount of waste in pupils passing from the Elementary or General Schools into the schools or classes for Industrial Training and Technical Education, and the greatest economy in the use of buildings, plant and competent teachers already in the service of the place, it would appear disirable that the Local Authority administering Industrial and Technical Education should be identical with the Local Authority controlling general education or in close organic association with it. If separate from the other it would

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seem expedient that it should be appointed either wholly by the Local Educational Authority or that at least a majority of its members should be so appointed, and that they should be; persons representing industries as employers and employees, business men, in the rural districts farmers, women who are housekeepers, and educators who have practical knowledge of school administration.

THE LAY ELEMENTS TO BE REPRESENTED.

Experience in all countries indicates that it is highly desirable that the Committee which has control of the Courses should contain representatives of the employers and of the employees actively engaged in or connected with the several occupations for which the students are being prepared or in which they are engaged. The co-operation of these persons who are engaged in industry with the educators or teachers ensures that the Courses of Study provided, and the kind of work to be carried on in the school, will be such as to meet the needs of the industries, the personal requirements of the young people and also conform to the judgment of the workmen who have had experience as to what is most useful to them. Such co-operation also helps to make the work of the school not merely acceptable to the pupils and satisfactory to the parents but also to keep it in accord with the desires and judgment of the men already engaged in the several occupations.

KINDS OF SCHOOLS AND COURSES.

It appears to the Commission desirable that provision should be made to enable all individuals in a community to continue their education for at least some portion of each week, month or year, until the age of 18 years. When it is not practicable for such persons to attend classes, it is desirable that they should be led to follow Correspondence-Study Courses, reading courses and private study, in order that the growth of intellectual interests and the appreciation of social duties might keep pace with the maturing of the body and the progress in mastering some occupation.

The provision of opportunities for the development of individuals and for the training of workers for all the occupations can be accomplished only by gradual development. Only in that way can they become an economical part of the public service which contributes to the industrial, economic, intellectual and social progress of the nation.

EQUALITY OF OPPORTUNITY.

Sometimes an idea prevails that a scheme of education provides equality of opportunity by letting all who desire have access to the same classes. Equality of opportunity, to mean anything real, must have regard to the varying needs, tastes, abilities and after lives of the pupils. To be able to attend schools, whose Courses are provided chiefly for those whose education can be continued until

18 or 20 years of age, does not ensure any sort of equality of preparation for occupation or for living to those who are compelled to leave at 14. Equality of opportunity to enter a school designed to prepare leaders, is not what is needed and is not what is wanted by the parents of most of the children. Equality of opportunity, to be sincere and operative, must offer opportunities of education which will serve the pupils not all the same thing, but will serve them all alike in preparing them for the occupations which they are to follow and the lives which they are to lead.

The problem is to unite in well-ordered Courses of Study what has been proven thoroughly useful in formal education with what has been found really educational in industrial and technical work. The Commission indicates how that may be done in the Chapter VII on Some Provisions in a System of Industrial Training and Technical Education.

STATEMENT OF AIMS.

The aims of Industrial Training and Technical Education are arranged here in an order of importance for the guidance of those who plan the courses and kinds of work to be done:—

1. The preservation of health and the vigour of life.
2. The formation of good habits.
3. The development of the sense of responsibility and duty.
4. *The preparation of the body, mind and spirit for following some useful occupation.*
5. *The cultivation of the mental powers, the acquisition of knowledge and the development of the scientific spirit, with direct reference to the occupation.*
6. The promotion of goodwill and desire and ability to co-operate with others.
7. The maintenance of standards and ideals.
8. As all-inclusive and ultimate, the perfecting of the human spirit, the improvement of the quality of life itself and the betterment of the conditions of labour, leisure and living.

MEANS TOWARDS ATTAINMENT.

The full results of Industrial Training and Technical Education are to be sought through,—

1. The discipline which comes from interest in work and from co-operation with others in educational classes to at least 17 years of age;
2. The conservation of the love of work and of satisfaction in doing it well;
3. The acquisition of technical scientific knowledge, and the development of the scientific spirit;
4. The preservation and strengthening of a spirit of willingness to accept and fill one's place in organized society which implies relative positions and relative degrees of authority.

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The acquisition of mere trade or craft skill is only one of the means which in education can be made helpful for reaching the larger ends. General education also promotes these ends; and there need be no essential difference between the aims of Industrial Training and Technical Education and those of general education. The main distinction is in the narrower field and more direct methods by which Industrial Training and Technical Education seek to provide qualification for the working or earning part of life's activity.

THE GROUND TO BE COVERED.

In the opinion of the Commission, it is important:—

1. That the needs of the individuals for knowledge, ability and skill in their vocations or occupations should be considered in all the courses of study and methods of education which are provided at public expense;

2. That from 12 years of age and onward the general and cultural education may with advantage include adequate vocational education;

3. That, while the ultimate or ideal end should be kept in mind, the immediate effort should be directed to meet successfully the most pressing needs of existing conditions;

4. That the effort should be directed to provide,—

- (a) An adequate supply of competent instructors, as well-informed and trained as practicable, to carry on the work which may be attempted;

- (b) Courses of study and work in the several classes or institutions which would help the individual workers in connection with their occupations and thereby utilize the interest aroused to keep them in touch with educational effort and influence for development of the more purely mental qualities and moral powers;

- (c) Such a system as can be most advantageously connected with the existing systems of education and existing institutions, classes and efforts.

The Commission does not recommend that the effort should be directed mainly to make Industrial Training and Technical Education fit in with the existing systems of education, existing institutions or classes; but rather to secure, as far as practicable, the co-operation of all the educational interests, in order to ensure progress in the most effective way in the shortest time and with the greatest benefit to the pupils.

The Commission would regard it as a misfortune if the aims, systems, institutions, classes or methods of different parts of education should be made to clash with each other. So long as the dominant purpose is to direct them all towards the real benefit of the pupil, of the community and of industry, they converge towards, or radiate from, a common centre and do not lose effectiveness and power by mutual oppositions.

The problem is not to subordinate one part of education to another, but to provide for all parts and kinds. The special aim of Industrial Training and Technical Education should not be permitted to obscure or dominate the whole aim of education, which for the individual is the perfecting of the spirit and the development of all the powers of body and mind.

MUST BE ATTRACTIVE AND ADEQUATE.

One of the first considerations is that the Classes and Courses must be attractive to the young people themselves.

Many different kinds of school work are needed to meet all the requirements of all the young workers. This statement requires to be repeated and again repeated.

The general principles now accepted as essential to the success of Industrial and Technical Continuation Schools are:—

1. That the subject matter of every Course shall be directly related to the real problems of the daily life and occupation of the pupils.
2. That the pupils shall be arranged into classes so that those in one class will have common aims and purposes.
3. That the teachers shall have had practical experience in the occupations dealt with and be skilful in teaching, enthusiastic and sympathetic.
4. That the continuity of Courses shall be maintained for one year at least and where practicable for several years in sequence.
5. That the schools shall be equipped with illustrative and teaching material adequate to meet the practical needs of the pupils and to appeal to their imagination and, so far as possible, to their artistic tastes.
6. That the rooms where the classes are held shall be attractive, comfortable and convenient, that the atmosphere of the place, in an intellectual sense, shall be encouraging and stimulating and that opportunities shall be provided for the right kinds of social intercourse.

TO MEET INDIVIDUAL, INDUSTRIAL AND NATIONAL NEEDS.

The Commission recommends:—

1. That wherever practicable Continuation Classes should be constituted on the basis of identity or similarity of interests on the part of the pupils, rather than on the basis of ages, or academic or literary attainments. The best basis to indicate a similarity of interests is that of the occupation followed. In order that none might be excluded, from their inability to join in such work as constitutes the Course, it is desirable that there should be Preparatory Classes.
2. That the Continuation Classes should provide Courses for the learners in the industrial, agricultural, commercial and housekeeping occupations of the community.
3. That the Courses should be progressive from year to year, and that pupils should be encouraged to attend them for a period of not less than three years.
4. That Continuation Classes should be provided also for workmen and foremen, workwomen and forewomen, to enable them to extend their knowledge and increase their ability and skill for management and planning..

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5. That Schools or Courses should be provided of the grade of Intermediate and Secondary Industrial and Technical Education for those who are able to continue at school for from two to four years after the age for Elementary Education.

6. That Middle Technical Schools or Courses (Industrial, Agricultural and Housekeeping) should be provided for those who are able to return to school for periods of from 3 months to 3 years after having been at work until at least 17 years of age.

7. That Courses of a suitable sort should be provided for highly skilled foremen and managers. These might take the form of Short Courses, lasting from ten days up to one month, according to the needs of the particular industry and locality.

8. That existing institutions of College rank should receive whatever additional financial support may be necessary to enable them to fill their place in a national system of Industrial Training and Technical Education.

SOURCES OF FINANCIAL SUPPORT.

In the establishment and maintenance of Industrial Training and Technical Education in the several countries visited, the proportion of financial support provided by the several authorities was so various that no general statement of a principle can be deduced from the information obtained.

In the case of countries such as England and Scotland, in which substantially the same public authorities share in the control and expense of Industrial Training and Technical Education as carry on the work of general education, the proportion contributed by the Central Authority is sometimes more and sometimes less than in the case of its grants towards the support of general education.

In Germany the Imperial or Federal Government does not contribute towards the maintenance of education or exercise any control in regard to it with the exception of indicating the standard which qualifies those who pass the examination to give only one year instead of two of military service, which qualification can be attained by boys at about their 16th year.

The proportion of the cost provided by the several authorities varies in the different States of the Empire and also in the several cities and sometimes in the one city in the case of each institution or kind of school. In the higher or more expensive forms of Industrial or Technical Instruction the State, being the larger and financially the stronger authority, pays the largest proportion. The reason for that lies in the fact that those who receive the higher forms of Technical Instruction are best qualified to serve the State and advance its interests as a whole rather than those of any particular community.

In the United States public education is provided and maintained by the organized action of communities, county or district areas and the several States. The Federal Government exercises no control over and contributes nothing to the support of general education. In several Acts the Federal Government has

provided substantial financial assistance for the establishment and maintenance of State Colleges of Agriculture and Mechanic Arts.

The United States and Switzerland are the two countries visited by the Commission in which the Federal Government does contribute substantially towards the establishment and maintenance of Industrial Training and Technical Education. In Switzerland the maintenance of general public education is wholly a question for the Communes and Cantons, although the Federal Authority has begun in recent years to give grants for the maintenance of general education in needy localities. The Federal Government or Bund gives substantial grants for the maintenance of Technical Education and maintains the renowned Polytechnic at Zurich.

CONSIDERATIONS TO BE KEPT IN MIND.

The Commission is of opinion that the following considerations, and others of a minor character, indicate that individuals, Corporations, Associations, Municipalities, the Provinces and the Dominion should co-operate in providing financial support for a system of Industrial Training and Technical Education for Canada. The Commission has endeavored to outline a plan whereby that may be done, with advantage to all interests concerned and injury to none, in Chapter VII: A Development Policy for Canada. The considerations referred to above are as follows:—

1. Since Industrial Training and Technical Education have everywhere proved advantageous, and advantageous only, to the community and the nation, it follows as expedient and proper that the State and the community should assist in providing the means of such education. Moreover, since such education is of immediate benefit to the individual it may be claimed that the individual or his parents should meet part of the expense. However, the interests of the community and the Province predominate so much that, in order to prevent any disability which the charging of relatively high fees might impose, Public Elementary and Secondary Education is substantially free to the individual. There are exceptions, but the trend is in the direction of the school, without fees, maintained by the public funds. Although some of the Universities and Colleges charge high fees, in their case a considerable share of the total cost of education is provided either by grants from the Provincial Governments, revenues from endowments or contributions from philanthropic sources.

2. The incidence of the charge, for the cost of schools, should have regard to the ability to pay as well as to the advantage that will result from the education. This principle should be applied in seeking a basis which would be equitable, from which to obtain revenues to maintain Industrial Training and Technical Education. It may be assumed that the fees should not be considered as a main or important source of revenue, but should be rather for the sake of the effect on the attitude, earnestness and regularity of attendance of the pupils.

3. The cities derive the most immediate benefit from the maintenance of Industrial Training and Technical Education and are financially better able

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to support it than the small communities in towns and villages and in rural districts. For both reasons a larger proportion of the total cost of Industrial Training and Technical Education might and should be borne by cities than by the smaller towns and rural communities.

4. The industrial efficiency of the individual worker is of value not merely to himself, to the particular trade at which he works, to the community in which he lives, but also to the nation as a whole. Moreover, the facilities for travel and the frequent change of residence indicate that, while the individual would obtain the benefit of Industrial Training and Technical Education in one locality, he might follow his occupation in another that might be far distant. That would be the more common and likely because of the large and rapid growth and development of Canada.

5. The very considerable increase in the population of Canada by immigration is throwing additional burdens for Elementary Education upon the communities and the provinces. The enhanced public revenues, due to growth by immigration, goes in a large measure into the Dominion Exchequer. The increase of the volume of trade brings in larger amounts through the Customs Offices. This would indicate that the new financial responsibility and burdens for Industrial Training and Technical Education, on a scale large enough and generous enough to be available to all the people between the ages of 14 and 18, should be sustained in large measure by funds from the Dominion Government.

6. The work carried on by the Dominion Experimental Farms, while mostly devoted to research work by experiment, is similar to some of the Technical Instruction provided in other countries as a part of the Educational system. The many and valuable bulletins issued, the frequent and useful addresses by members of the Staff at meetings of farmers and others, and the visits of thousands of farmers to the Experimental Farms, are all definitely intended as a means to educate the farmers into a wider knowledge of the systems and methods of farming and the principles which underlie them.

7. The work of the Dairy and Cold Storage Commissioner, the Live Stock Commissioner and the Seed Commissioner are also in very deed educational, although not nominally so.

8. Those institutions and offices, and the activities of the officers themselves, are intended to have educational results affecting the knowledge and ability of the farming community, affecting the methods whereby their work is being carried on, and in general developing the power of the workers through intelligence and increased skill in the management of their business. That they have so affected them is written large on the progress of agriculture, and the education of farmers, during the past quarter of a century.

9. A Dominion Act for the granting of aid for the advancement of Agricultural Instruction in the Provinces was assented to at the session of Parliament 1912-13. Section 3 of that Act (*The Agricultural Instruction Act*) is as follows:

3. For the purpose of aiding and advancing the farming industry by instruction in agriculture, and for the purposes authorized by this Act, the following sums, aggregating ten million dollars, shall be appropriated and paid out of the Consolidated Revenue Fund of Canada during each fiscal

year for the period of ten years beginning with the year ending the thirty-first day of March, one thousand nine hundred and fourteen, namely:—

During the fiscal year ending the thirty-first day of March, one thousand nine hundred and fourteen, the sum of seven hundred thousand dollars;

During the fiscal year ending the thirty-first day of March, one thousand nine hundred and fifteen, the sum of eight hundred thousand dollars;

During the fiscal year ending the thirty-first day of March, one thousand nine hundred and sixteen, the sum of nine hundred thousand dollars;

During the fiscal year ending the thirty-first day of March, one thousand nine hundred and seventeen, the sum of one million dollars;

During the fiscal year ending the thirty-first day of March, one thousand nine hundred and eighteen, the sum of one million one hundred thousand dollars; and the like sum of one million one hundred thousand dollars during each of the succeeding fiscal years until the expiration of the fiscal year ending the thirty-first day of March, one thousand nine hundred and twenty three; provided that any portion of any of the above sums which may remain unearned or unpaid at the expiration of any of the said fiscal years previous to the last shall be carried forward and remain available according to its apportionment for the purposes of this Act during any one or more of the succeeding years.

GRANTS IN AID OF PUBLIC SERVICE.

Some of the general principles which by experience have been found politically and economically successful, in the providing of Grants in Aid of various kinds of public service, by a Central Authority are concisely and clearly set forth by Mr. Sidney Webb.* The following statements, based upon his book, are presented as illustrating the trend of administrative practice in the United Kingdom and as being a summary of competent opinion in so far as it appears to be related to this question in Canada:—

VARIABLE CHARACTERISTICS.

By a "Grant-in-Aid" the English administrator understands a subvention payable from the Exchequer of the United Kingdom to a Local Governing Authority, in order to assist that Authority in execution of some or all of its statutory duties. The subvention may be an isolated payment, but is usually recurrent or annual. It may be a matter of statutory obligation or dependent on the recurring decision of the Minister in charge of a particular department. It may be unconditionally of fixed amount, or variable according to the circumstances of the time. Most important of all, its variable amount may be dependent on the growth of population, or of a particular section of it, on the amount of some particular service, on the number of officers appointed, or the sum of their salaries, on the expenditure of the receiving Authority, on the rateable value of its district, on the efficiency of its work, or on some other condition. And according to the conditions and stipulations that are attached to the Grant-in-Aid, so will be, whether or not we like it or foresee it, its effect on public administration.

Their use has often been sought as a means for making an inroad on the Exchequer and to save the local rates, for a service which the locality would otherwise be required to maintain wholly for itself.

AS AN INSTRUMENT OF GOOD GOVERNMENT.

The importance of a system of Grants-in-Aid as an instrument of good government is coming to be recognized more and more. Legislators and the public connect a system of Grants-in-Aid with legislation to make it effective. In that regard much depends on the particular conditions upon which the Grant-in-Aid is made and can be obtained.

**Grants-in-Aid*, by Sidney Webb: Longmans, Green & Co., London, 1911.

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In the actual practice of administration Grants-in-Aid are becoming more and more pivots on which the machinery of government really works.

Central executive departments have at their command a wider experience and a greater knowledge than any local body could possess. The combination most highly to be desired is that of liberty for the locality with efficiency through co-operation with the Central Authority. The combination of local interest, knowledge and ability with central interest, knowledge and ability give the best results.

Grants-in-Aid are means of equalizing the burden of taxation. Extreme inequality of burden exists between that of one district and another. This is aggravated by inequality of means to bear the cost, and also by the larger cost per head of population, owing to local, social and economic conditions. When the burden of taxation is felt by the people of the locality to be inequitable, that itself hinders the proper development of the public service.

The amount of Grant-in-Aid from the Central Authority should bear some equitable proportion to the actual amount or cost of the public service in each locality considered in the light of the ascertained ability of the locality to pay.

A most important use of Grants-in-Aid is through them to give weight to the suggestions, criticism and authoritative instructions, by which the Central Authority seeks to secure greater efficiency and economy of administration. The verdict of experience is that when properly devised and applied they afford a basis for the best of all relations between Central and Local Authorities.

ENCOURAGING DESIRABLE LOCAL EXPENDITURES.

The Grants-in-Aid are used to stimulate and promote expenditures in the ways thought desirable, rather than in other ways. Given for education they are conditioned on schools maintained in efficiency.

Some of the grounds on which the policy of Grants-in-Aid can be justified or advocated:—

1. They may be given as a recognition of the fact that the local service thus aided is one which is performed, not for the locality alone, but, in part at least, in furtherance of the interests of the community as a whole.

2. They may be made, not for services arbitrarily styled "National" (because they are services which every community needs and derives benefit from), but for certain definitely selected services in the efficiency of and results from which the community as a whole has considerable interest.

All the successful grants have taken the form of proportional subventions towards the cause of specific services. A lump sum grant for general purposes becomes an encouragement to extravagance and laxity of administration. Whatever sum is paid should vary from year to year according to the extent and efficiency of the service by a Local Authority. There are advantages from variable grants, and also advantages from the grant being one on which the Local Authority can depend.

Local Authorities are eager for increased subventions. The thing to do is to put the payment of the subvention on conditions which will not merely relieve the ratepayers, but also promote the efficiency of the service and secure service of value to the community as a whole, which would not otherwise be provided.

As a rule grants should be variable in the interests of efficiency, and should afford special encouragement to poor districts. Therefore grants may be given in lump sums in proportion to the total expenditures on the service by the Local Authority, and in proportion to its poverty or ability. That seems to be the best basis which experience dictates.

PROMOTING EFFICIENCY IN ADMINISTRATION.

There is need for an efficiency audit. The community as a whole which provides the money for a Grant-in-Aid has the right to satisfy itself, by the inspection through expert officers of the central departments concerned, that the service is performed up to the extent, and with at least the degree of efficiency that the community may in its own interests from time to time prescribe. No grants should be payable unless a certificate is given by the department of the government concerned, that the Local Authority is administering the service alike in adequacy and efficiency in accordance with law and authoritative regulations, up to at least the national minimum, and doing its best according to its means. The advantages of local over national or central administration are very great. It is important that local government should be preserved, extended and improved. The object should be to secure co-operation between the Local Authority and the Central Authority, and not to cause conflict through any policy or plan by which the Local is expected or required to be active only in obedience to the instructions or requirements of the Central.

An efficiency audit should extend to more than the question of the bare legality of the expenditure and of the fact that it was made in a certain direction on certain indicated objects.

RESTATEMENT OF SOME PRINCIPLES.

The Commission is of opinion,—

1. That financial support should be provided by Public Authorities, and by individuals, Corporations and Associations who are directly concerned and who would be likely to profit by the results to be obtained.

2. That the relative measure of support should be in some equitable proportion to the interest in the results, and the ability to pay, of the four possible classes of contributors, viz,—(a) the individuals, Corporations and Associations, (b) the local community such as the Town, City or County, (c) the Province and (d) the Dominion.

3. That in determining the proportion of the cost of Industrial Training and Technical Education, to be contributed by different public authorities, regard should be had not only to the benefit to the local community to be expected from Industrial Training and Technical Education, but also to the ability of the community, and to some extent to its willingness, to provide the education of an adequate kind and to a sufficient extent.

4. That it is reasonable and desirable that the Public Authority with the larger financial resources should meet the largest proportion of the cost for the communities where population is most sparse and the amount of taxable property, per head of pupils to be educated, is lowest.

5. That the prevention of progress in a locality and the lack of development in individuals, which might result from delay in providing suitable education until the local community was both able and willing to provide it in full or in a large measure, would be felt not only by that community itself, but by the Province and Dominion as a whole. In consequence, on economic as well as other grounds, the larger Public Authority, Provincial or Dominion, which is able to give a large measure of financial assistance, to a community weak in resources, would find such a course to be an excellent investment. The development of Industrial Training and Technical Education in such a community would bring it forward into ability to take a larger share for itself in maintaining the cost of such education and other public services.

6. That the Authorities, by whom financial support is furnished, should have sufficient cognizance of the results from it to be able to pass intelligent and fair judgment on the question of continuing or lessening or increasing the amount of support to be given.

7. That the financial support should be arranged for under such legislation as would warrant individuals and communities in deciding to devote a considerable period of time and amount of money to the evolution of Industrial Training and Technical Education. In order that plans might be made with reasonable confidence in the permanence of the undertaking, it is highly important that such provision should be made as would give reasonable assurance to the teachers and instructors, who become qualified to carry on the work, that satisfactory remuneration would be paid to them and continued employment provided for them.

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8. That the financial support provided from Provincial or Dominion sources, as grants to Local Authorities, should be devoted mainly if not wholly to the provision of competent teachers and the payment of a proportion of teachers' salaries and of the cost of equipment for instruction.

ORDER OF PROCEDURE IN LOCALITIES.

The Commission is of opinion,—

1. That in smaller towns the provision at first should be in the nature of Courses in Industrial Science, Drawing and Calculation, with opportunities for constructive work in wood, metals, textiles, foods, or other materials appropriate to the larger industries of the neighborhood. Out of such Courses would grow Classes or Courses specifically appropriate for the workers in the various industries.

2. That in the larger places it would be expedient to provide Courses appropriate for the groups of fundamental industrial occupations such as the building trades; metal and machine trades; wood working trades; electric trades; textile trades; clothing trades; boot and shoe trades; printing and lithographing trades; leather, glove and harness trades; paper making; and art trades.

3. That when Classes or Courses for these grouped trades have been carried on, Classes or Courses for the particular trades could be evolved. For example, for the building trades, there would be Classes or Courses for masons, bricklayers, carpenters, painters, etc. In like manner there would be developed for the metal and machine trades, particular Classes or Courses for machinists, moulders, blacksmiths, etc. In a similar manner, out of the woodworking trades, would come Classes or Courses for cabinet makers, furniture makers, pattern makers, wooden utensil and tool makers, etc. Out of the general school for the textile trades, special Classes for spinners, weavers, lace makers and the makers of embroidery would be arranged.

4. That in every case a Local Development Board, or other Local Authority, should make, or cause to be made, a plotted-survey of the needs of the population by numbers, ages and occupations, and another plotted-survey of the provision (if any) which exists in buildings, equipment and teaching force suitable and available for use. When the one plotted-survey is placed over the other the situation can be studied with the greatest advantage to all interests. In this connection consideration should be given to what was done at Leeds and Edinburgh.

5. That the training of teachers and executive workers for service in Industrial and Technical Schools should be advanced as soon as practicable.

6. That Classes for Foremen, and workmen who are both intelligent and highly skilled, should be undertaken for the first object of giving such men greater qualification for their own occupations. Such classes would primarily be for the benefit of those who attended them. Out of those who attended doubtless a number would be revealed who would have some natural aptitude for teaching, and who during the following year would be disposed to teach in the Continuation Classes and to teach to some extent after the method by which they

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themselves had been instructed. To begin these classes it would be necessary to secure the services of a few highly efficient teachers who had had successful experience in such work.

7. That inducements should be offered to professional teachers, who already had a knowledge of and a taste for Industrial and Technical work, to spend some time in practical work in workshops or factories similiar to those of the place in which they would afterwards teach.

8. That by a combination of these two methods, in a short time, it would be possible to secure a local supply of men competent to conduct Continuation Classes and the Trade Classes in Day Technical Institutes. Men with more systematic and thorough training would be required for the higher places in Technical Institutes and Middle Technical Schools.

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CHAPTER VII: A DOMINION DEVELOPMENT POLICY.

SECTION I: PROVISIONS FOR INDUSTRIAL TRAINING AND TECHNICAL EDUCATION.

The Commission considers that the Provisions which are indicated hereafter under the names of Classes, Courses, Schools, Institutes and Colleges are necessary in a system or systems of Industrial Training and Technical Education for Canada.

The plan of statement by Classes (or Schools) is adopted because it is believed that by this means Local Authorities and Provincial Authorities will be helped in the best way to co-ordinate the Provisions which now exist with what is to be provided, in so far as that is desirable, and *vice versa*.

The Provisions have been arranged under three main headings:—

FOR THOSE WHO ARE TO CONTINUE AT SCHOOL IN URBAN COMMUNITIES;

FOR THOSE WHO HAVE GONE TO WORK IN URBAN COMMUNITIES;

FOR RURAL COMMUNITIES.

Under each heading the Provisions have been put in Divisions beginning with the elementary and going upward. For example, under the heading FOR THOSE WHO ARE TO CONTINUE AT SCHOOL, Division I comprises Intermediate Industrial Classes (or Schools), and Division VI contains Technical Colleges and other institutions of similar rank.

Instead of attempting to present in this Chapter a statement in great detail of the character of the Courses of Study of the Classes of any Division, references are given at the end of each Division to pages where full information may be found. A fuller discussion of matters dealt with here will be found in Chapter VI on Organization and Administration; Chapter IX on Education for Rural Communities; and Chapter X on Education for Housekeeping Occupations.

The lower Divisions under each heading are the immediate concern of all communities, although no locality can be wholly without interest in the higher institutions since some of the teachers for the lower Divisions will be educated in them and also some of the men and the women for the foremost positions in industrial, rural and housekeeping life.

Practically every Urban Community requires the Provisions in the first three Divisions, whereas, with the exception of the two largest Provinces, there is not room or need at present for more than one Technical College of the highest grade in any Province.

MAKING THE MOST OF EXISTING PROVISIONS.

Some of the Provisions recommended herein already exist in more or less developed and organized form in some places. In the matter of the highest

institutions, such as Technical Colleges, Colleges of Agriculture and Colleges of Domestic or Household Science, Canada appears to have a sufficient number. They could all be used to their utmost capacity and to great advantage in connection with the education of teachers and other leaders in all departments of Industrial Training and Technical Education.

It is not to be inferred that the Classes (or Schools) of any Division require buildings, equipment or staff for themselves, wholly separate from what is required for the Classes (or Schools) in the other Divisions. Whether an institution should have accommodation and facilities for more than one kind of Classes (or Schools) is a matter to be decided according to local conditions. There are undoubted advantages from having Classes of the different Divisions (and of different kinds in the same Division) in one institution, and there are advantages from having the more elementary Classes in a building or buildings convenient to the homes of the pupils. Local needs, conditions and resources furnish the only adequate data for guidance in that respect.

The Commission counsels energetic action in all the Provinces in arranging for the Classes; and advises prudent consideration before deciding upon new and permanent buildings. A year or two of experience in provisional quarters would enable the Local Authority to avoid serious mistakes. Expert counsel and criticism which should be available from headquarters, would assist it to provide for its needs economically, adequately and effectively. For example, in the City of Belfast six years of creditable work were accomplished before the Municipal Technical Institute was completed. By that time its arrangements and equipment provided just the right kind of facilities. They have become a tribute to the wisdom and ability of those in charge and a model for other towns and cities.

The first thing for a Local Development Board to do is to make a Census-Survey of the community, the industries, the occupations and the existing accommodation and facilities. The examples of Leeds and Edinburgh are noteworthy in this connection.

The next step is to consult an expert or experts, from Provincial or Dominion headquarters, as to how a beginning can be made to meet present conditions and to provide for future development economically, prudently and effectively.

The third step is to make plans and send forward a proposal and budget to the proper Provincial Authority.

The remainder of the path will reveal itself by experience, discussion, counsel and co-operation.

The Provisions recommended are as follows:

FOR THOSE WHO ARE TO CONTINUE AT SCHOOL IN URBAN COMMUNITIES.

Division I. Intermediate Industrial Classes (or Schools).

“ II. Co-ordinated Technical Classes (or Schools).

“ III. Technical High Schools.

“ IV. Apprentices' Schools.

“ V. Industrial and Technical Institutes.

“ VI. Technical, Home Economics and Fine Arts Colleges.

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FOR THOSE WHO HAVE GONE TO WORK IN URBAN COMMUNITIES.

Division I. Continuation Classes (or Schools).

- " II. Co-ordinated Technical Classes (or Schools).
- " III. Middle Technical Classes (or Schools).
- " IV. Apprentices' Classes (or Schools) in Workshops.
- " V. Industrial and Technical Institutes.
- " VI. Extension Lectures and Correspondence-Study Courses.

FOR RURAL COMMUNITIES.

Division I. Intermediate Rural Classes (or Schools).

- " II. Rural High Schools.
- " III. Continuation Agricultural Classes (or Schools) under Resident or Travelling District Instructors.
- " IV. Continuation Housekeeping Classes (or Schools) under Resident or Travelling District Instructresses.
- " V. County or District Agricultural and Housekeeping Schools.
- " VI. Young People's Social Service Schools.
- " VII. Schools for Agricultural Apprentices.
- " VIII. Agricultural and Home Economics Colleges.
- " IX. Correspondence-Study Courses.

FOR THOSE WHO ARE TO CONTINUE AT SCHOOL IN URBAN COMMUNITIES.

DIVISION I.—INTERMEDIATE INDUSTRIAL CLASSES (OR SCHOOLS).

Qualifications for admission:—

Age, 13 years and over;

Completion of the work of the Elementary School, or ability to read, write, draw and calculate to the satisfaction of the Principal or a Committee on Admission.

Completion of two years of Pre-Vocational classes in an elementary school would be most advantageous.

Wherever necessary Preparatory Classes should be conducted to enable pupils who are not qualified for the Industrial Classes to receive the required instruction.

There should be separate schools for boys and girls, or separate departments in the same school.

*Courses:—*Two years or less.

The kind of work and study should provide series of experiences arranged in proper sequence to give the training and knowledge which would be advantageous to young people who are to follow industrial occupations. As far as practicable the manipulations of materials, (such as wood, clay and stone products, metals, paper, textiles and foods), the work with tools and machines and the articles made, should have regard to the industries of the area and the population served by the school.

The theoretical, science and language work should be kept in close association with the life interests of the pupils and should be taken up to the extent of their capacity, considering age and degree of previous attainment, and in keeping with the primary object of the school, which is to ensure progress by the pupils towards efficiency in "doing things" and becoming good citizens.

It is entirely desirable that the theoretical and book work should be related directly to the doing-projects of the pupils and *vice versa*. Taking up subject-studies in Mathematics, Drawing and Science which are out of immediate relation to the practical work of the pupils has not been found a profitable way of using the time.

About half the time should be devoted to acquiring ability to use books and drawings, to gaining a knowledge of principles, and an acquaintance with and an understanding of Mathematics, Science, Geography, History, Literature and the duties, rights and privileges of citizens.

About half the time should be devoted to training in "doing things" as indicated; and it would be entirely advantageous to have things made that have commercial or economic values.

Types of Schools similar to those in this Division which should be studied from Part III in connection herewith:—

Trade Preparatory Schools as reported upon at Leeds and Halifax, England;

Classes at Tynecastle Workshop Schools, as reported on at Edinburgh, Scotland;

Trade Preparatory School, at Belfast, Ireland;

Practical Schools of Commerce and Industry (Industrial Section), France;

Pre-Apprentice School, Paris, France;

The Independent Industrial Schools of Massachusetts as represented by the School at Newton, Mass.;

Vocational School, Springfield, Mass.;

Intermediate Industrial Schools of New York, as represented by the Schools at Rochester, N.Y.;

Seneca Vocational School, Buffalo, N.Y.;

State Trade School, Bridgeport, Conn.

Where products are sold.

The Commission regards it as undesirable that schools maintained at the public expense should be used for the production of commodities, or the doing of work, in such a way as to injure private business through competition in selling such products or for the purpose of making profit from the labor of the students. Two facts have been brought to the attention of the Commission: (1) the actual amount of products which goes on the market from Industrial Schools, where such products are sold, is never as large in quantity as the volume of products which the same young persons would be the means of turning out, if they were employed in the commercial factories or shops instead of being at the Industrial School; (2) the work is not of inferior grade, but is often of a higher standard of finish than similar output

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from commercial shops, because a greater amount of labor has been expended in order that the students might have the kind of experience that leads to thoroughness of workmanship and completeness of finish.

DIVISION II.—CO-ORDINATED TECHNICAL CLASSES (OR SCHOOLS).

Qualifications for admission:—

Age 14 to 16 years and over;

Completion of the work of the Elementary School or ability to read, write, draw, and calculate to the satisfaction of the Principal or the Committee on Admission.

Completion of one year in an Intermediate Industrial Class would be most advantageous.

*Courses:—*Four years.

NOTES:—

The work and study should provide series of experiences at school arranged to fit in with the experiences at the workshop.

Preferably the whole of the first year to be devoted to school work. During that year the work to be done would be similar to that of the second year of the Intermediate Industrial Classes with particular regard, in the practical, operative, "doing things" part of the work, to the particular trade or occupation to be followed by the pupil.

Three years to be devoted to school and workshop experience, about half time to each, preferably alternating the attendance week about.

In cases of trades in which there are periods of slackness or "no work", the alternate periods might be made to suit the conditions of the trade. For example, in some of the building trades the summer months might be spent continuously at work, and some months in the winter continuously at school.

Types of Schools similar to those in this Division which should be studied from Part III in connection herewith:—

Part-time or Half-time Co-operative Industrial Schools of United States;

The Co-operative High School, Fitchburg, Mass.;

Co-operative Industrial School, Beverly, Mass.;

The Worcester Trade School, Worcester, Mass.;

The Co-operative High School, Cincinnati, Ohio;

Smith's Agricultural School and Northampton School of Technology, Northampton, Mass.

DIVISION III.—TECHNICAL HIGH SCHOOLS.

Qualifications for admission:—

Age 13 years and over;

Completion of the work of the Elementary School, or of the first year of the Intermediate Industrial School.

Courses:—Four years.

These would be provided in Departments of a General, or "Union", High School, or in separate High Schools according to the needs of the community. These might be arranged as:—General or Professional; Scientific; Commercial; Technical; Agricultural; Housekeeping; Fine Arts.

The General Department would provide general secondary education and prepare pupils for admission to Arts Courses in Colleges and to Normal Schools.

The Scientific Department would prepare pupils for admission to higher institutions, with a view to education for such professions as Medicine, the different kinds of Engineers (Civil, Chemical, Sanitary, Mechanical, Electrical, Mining, Rural), etc.

NOTE:—

The foregoing departments would be considered as part of general Secondary Education as now provided at High Schools and Academies under the Public School systems.

The Commercial Department would prepare pupils for entering upon occupations in business (Commerce, Transportation, Banking, Civil Service) and also for admission to higher institutions.

The Technical Department with separate classes for boys and girls would prepare pupils for entering upon occupations in trades and industries. It would provide suitable school training for those who, after some years of practical experience, might become foremen and fill the directive positions in industries. Its course and work would differ from the Intermediate Industrial School in so far as the equipment for "doing things" and the doing of things by the pupils would have more regard to enabling them to understand the principles underlying mechanical and industrial operations than to preparing them for entering workshops or factories at the age of 15 or 16. As compared with the Intermediate Industrial School it would put emphasis on wider and more thorough knowledge of principles, mathematics and sciences by means of its 4 year course.

In towns where there were not enough pupils for the two kinds of classes, the first year of this Department might serve the purposes of the Intermediate Industrial classes.

The Agricultural Department would give courses and training similar to those of the Rural High School. (See page 256).

The Housekeeping Department would give general vocational education for Homemaking and Housekeeping, and would prepare for admission to higher institutions.

The Fine Arts Department would work for the inclusion and realization of fine art (beauty in form, colour and composition), in the work in all the Depart-

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ments, and would also prepare pupils to enter upon occupations as designers, photographers, painters, sculptors, etc. It would also prepare pupils for admission to higher institutions.

NOTES:—

In general the training at this school would prepare pupils for entering upon occupations at 17 or 18 years of age and for admission to higher institutions.

Whether the Commercial, Technical and Housekeeping Classes should be Departments of a "Union" High School or be conducted in separate premises under separate staffs, are matters to be determined by the Local Development Board in view of local conditions.

In Germany the common practice is to have Technical Education carried on by staffs of teachers different from those who conduct general education, and usually in separate buildings.

In the United States the opinion seems to be divided between having "Union" High Schools which include the different departments, and Special High Schools for Commercial, Technical and Housekeeping instruction respectively.

In Canada careful consideration should be given to what Provisions would be necessary and desirable for Co-ordinated Technical Classes as under Division II and Middle Technical Classes under Division III 'for those who have gone to work.'

Types of Schools similar to those in this Division which should be studied from Part III in connection herewith:—

Borough Polytechnic Institute, London;

Galashiels Technical College, Galashiels, Scotland;

Technical Schools and Science and Art Classes, Ireland;

Municipal Technical Institute, Belfast, Ireland;

Technical Schools in France:

Higher Practical Schools of Commerce and Industry, at Paris;
Grenoble;

Nancy;

Lyons;

Realschulen and Oberrealschulen of Germany;

Technical High Schools of the United States:

Boston High School of Mechanic Arts;

Buffalo, N.Y.;

Cincinnati, Ohio;

Cleveland, Ohio;

Los Angeles, Cal.;

Newton, Mass.;

Providence, R.I.;

Technical High Schools at Montreal, Que., Toronto, Ont., and Winnipeg, Man.

DIVISION IV.—APPRENTICES' SCHOOLS.

Qualifications for Admission:—

Age 15 years and over;

Completion of Elementary School course or ability to read, write, draw and calculate to the satisfaction of the Principal or the Committee on Admission.

Completion of the two years of the Intermediate Industrial Classes would be most advantageous.

Separate schools for youths and young women.

*Courses:—*One to four years, depending upon the character of the trade and the established custom of the trade in regard to apprenticeship.

Types of schools similar to those in this division which should be studied from Part III in connection herewith:—

Artane Industrial School, Dublin, Ireland;

Apprenticeship Schools of France: Paris;

The School for Iron Workers and Mechanics at Winterthur, Switzerland;

The School for Carpenters at Zurich, Switzerland;

The David Ranken, Jr., School of Mechanical Trades, St. Louis, Mo.;

The Hebrew Technical Institute, New York City;

The Lick and Wilmerding Schools, San Francisco, Cal.;

New York Trade School;

North End Union School of Printing for Apprentices, Boston, Mass.,

Williamson Free School of Mechanical Trades, near Philadelphia. Pa.;

Trade Schools for Girls and Women.

NOTES:—

There is a difference between a real trade-teaching school, where apprentices learn the whole of the trade, and the so-called Trade Schools of Germany. The Trade Schools of Germany are really Technical Schools where most of the instruction is intellectual and theoretical, given during from six to ten hours per week to pupils who spend the rest of the time in workshops, learning the trade and earning wages.

The Trade Schools of England are schools which give Vocational Education to qualify young people to enter upon the learning of the trade in a workshop, or are technical institutions in which men and women, who already have acquired practical ability in the trade, attend classes to receive instructions in Mathematics, Science, Drawing and other branches connected with their chosen occupation.

There is also an essential difference between an Apprentices' School where apprentices learn the whole of the trade, and the schools for apprentices in various works and shops, such as those of Railway Companies, the General Electric Company at West Lynn, Mass., Brown & Sharpe's, Providence, R.I. In the case of these workshop schools the apprentices are taken from six to twelve hours per week in the class-room under competent instructors to supplement the experience which they obtain in the workshop practice.

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The Commission does not recommend the establishment of real trade-teaching schools in Canada to be maintained by public funds. When experience has been gained as to the suitability and effectiveness of the Co-ordinated Technical Schools under Division II, whereby the learner spends part of his time in an earning capacity at practical work and the other part in the classes of a school, the question can be reviewed to advantage.

The Commission is of opinion that where practical workshop experience can be obtained by the young learner, that is a better training for industrial efficiency than where the whole of the training is obtained under school conditions. There is a disciplinary and intellectual result to the pupil from the necessity of observing workshop hours and workshop discipline, and conforming to workshop requirements for effectiveness, thoroughness and speed of labor.

DIVISION V.—INDUSTRIAL AND TECHNICAL INSTITUTES.

Notably in Germany, Denmark and Ireland, nearly every urban community has a Municipal Technical Institute. Provision is made in these in some cases for classes from the preparatory stage upwards. In most cases the Municipal Technical Institute takes students who have already had two years of Continuation Classes at other centres.

Types of Schools similar to those in this division which should be studied in connection herewith:—

Municipal Technical Institutes in England, such as those at Manchester, Leeds, Halifax, Barrow-in-Furness, Accrington and Widnes.

Municipal Technical Institute at Belfast, Ireland, and smaller places in Ireland.

Somewhat similar in part of the work would be the Lower and Middle Technical Schools of Germany, and the Technikum at Chemnitz.

DIVISION VI.—TECHNICAL, HOME ECONOMICS AND FINE ARTS COLLEGES.

Qualifications for Admission:—

Completion of the course at a recognized Secondary School, or ability to read, write, draw and calculate, with foundation knowledge and previous training to the satisfaction of the Principal or the Committee on Admission.

Separate institutions for men and women or separate departments in the same institution.

*Courses:—*As in Faculty of Applied Science at the University of Toronto; McGill University; Polytechnic School of Laval University, Montreal; etc.

Types of Institutions similar to those in this Division which should be studied in connection herewith:—

University of Leeds;

University of Sheffield;

Imperial College of Science and Technology, London;
 Central Institutions at Edinburgh, Glasgow and Aberdeen, Scotland;
 Royal College of Science, Dublin, Ireland;
 Institutions in France;
 Technical High Schools of Germany;
 Commercial High Schools of Germany;
 Massachusetts Institute of Technology, Boston, Mass;
 Cooper Union, New York City;
 Royal College of Art, London;
 Provincial Schools of Art in England:
 Bradford;
 Leeds;
 Leicester;
 Manchester;
 Schools of Art, Dublin and Belfast, Ireland;
 Schools of Fine Arts in France;
 Margaret Morrison Carnegie School for Women, Pittsburgh, Pa.;
 The Technical College, Halifax, N.S.;
 McGill University, Montreal, Que.;
 Polytechnic (Laval University), Montreal, Que.;
 University of Toronto.
 School of Mining (Queen's University), Kingston, Ont.

FOR THOSE WHO HAVE GONE TO WORK IN URBAN COMMUNITIES.

DIVISION I.—CONTINUATION CLASSES (OR SCHOOLS).

According to the needs of the community and the occupations of the pupils the Continuation Classes would be arranged for pupils to take Courses in one or more groups as underneath. There would be further differentiations in the Industrial and Technical group to meet the particular trades and callings, as in the German Continuation Classes for Building Trades, Metal Trades, Textile Trades, etc.

The groups might be as follows:—

- (1) General;
- (2) Industrial and Technical;
- (3) Commercial;
- (4) Housekeeping.

The Classes might be organized and conducted,—

- (a) In connection with the Public School System;
- (b) In separate buildings;
- (c) In connection with Municipal Technical Institutes or Schools;
- (d) By Voluntary Associations or other agencies.

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UNION ARRANGEMENTS.

Continuation Classes 'for those who have gone to work', in all or any of the four Groups, might be arranged for,—

(1) In connection with Classes or Schools 'for those who are to continue at school' and described as:—

- Division I. Intermediate Industrial Classes (or Schools).
- “ II. Co-ordinated Technical Classes (or Schools).
- “ III. Technical High Schools.
- “ IV. Apprentices' Schools.
- “ V. Industrial and Technical Institutes.
- “ VI. Technical, Home Economics and Fine Arts Colleges.

(2) In connection with Classes or Schools 'for those who have gone to work' and described as:

- Division II. Co-ordinated Technical Classes (or Schools).
- “ III. Middle Technical Classes (or Schools).
- “ IV. Apprentices' Classes (or Schools) in Workshops.
- “ V. Industrial and Technical Institutes.

When any of these aforementioned Classes (or Schools) are being arranged for, or organized and equipped, full consideration should be given to the question of Continuation Classes in connection with them.

The Continuation Classes are organized in connection with the public school system in a few of the States of Germany, in England, in Scotland, at Cincinnati, Ohio, at places in Nova Scotia, at Montreal, Que., Toronto, Ont., and Vancouver, B.C.

Continuation Classes are organized in separate buildings and under separate management in the large cities in several of the States of Germany.

Continuation Classes are organized in connection with Technical Institutes in the cities and larger towns of England, Scotland and Ireland, and also at some of the Universities, notably the Universities of Sheffield and of Leeds.

Continuation Classes are organized by Voluntary Associations and partially supported by public funds, as for example, by the Guilds of Germany, by the Council of Arts and Manufactures in Quebec, and by Y.M.C.A's.

This matter is treated in various places in Part III of the Report more particularly as follows:—

England:

Manchester;
Leeds;
Halifax;
Sheffield;
Barrow-in-Furness;
Accrington;
Widnes.,

Scotland:

Edinburgh;
Glasgow;

County of Fife;
Cowdenbeath;
Hawick Technical Institute;
Galashiels Technical College.

Ireland:

Belfast;
Kilkenny;
Portadown.

France:

Courses under Syndicates in Paris.

Germany:

Bremen;
Chemnitz;
Continuation Schools at various places such as;
Aix-la-Chapelle;
Berlin;
Cologne;
Dresden;
Frankfurt;
Stuttgart.
Also special schools for Machine and Metal Workers;
Building Trades;
Textile Industries;
Art for Industrial Trades;
Commerce.

United States:

Boston, Mass.;
Buffalo, N.Y.;
Worcester, Mass.;
Cincinnati, Ohio.

Special Schools:—

Schools for Miners;
Schools for Fishermen;
Schools of Navigation;
Schools for Tanning and Leather Industries.

(I) GENERAL CLASSES.

These would enable young persons over elementary school age, who have gone to work, (a) to go on with the general work of the elementary school, or (b) to supplement it by such education as would be given in the general department of a Secondary School.

The classes would be in the day or evening; and it is desirable that not less than 6 hours per week should be given to them.

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(2) INDUSTRIAL AND TECHNICAL COURSES.

Day and Evening Classes:—

6 to 10 or more hours per week.

Qualifications for admission:—

Age 13 years and upwards;

Completion of work of the Elementary School or ability to read, write, draw and calculate to the satisfaction of the Principal or a Committee on Admission.

Completion of two years of the Intermediate Industrial Classes would be most advantageous.

Classes for workers as follows:—

- (a) Apprentices and other learners;
- (b) Skilled workmen and workwomen;
- (c) Foremen and Superintendents.

Separate classes for boys, men, girls and women.

Courses of two kinds:—

(1) Chiefly theoretical, with special reference to the occupation of the pupil and co-ordination with the work of his occupation at the time;

(2) Chiefly practical, with at least half the time to practice in handwork and operations with tools and machines, to widen the range of skill and knowledge.

In general the Courses should be made to suit the occupations and the populations of the area served, and where practicable should be arranged progressively to continue for a period of three or four years or more.

Both kinds of Courses should provide also for studies in Literature, History and the duties, rights and privileges of citizens, and for Physical Culture and Singing.

The work in each of the Courses should be arranged as far as practicable on problems, projects or interests, each of which would become a centre for correlated study of several subjects, such as Mathematics, Science, Composition, etc. A Project-Study is not the same thing as the study of separate subjects as such.

(3) COMMERCIAL CLASSES.

These might be organized in connection with the public school system, and might be added to or developed in connection with the Commercial Department of a High School or Academy, or might be provided in separate premises.

The classes would be in the day or evening.

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(4) HOUSEKEEPING CLASSES.

These might be organized on a plan similar to the Industrial and Technical Classes. The Courses should be arranged to suit the needs and meet the convenience of the girls and the women in the area to be served.

It is highly important that Vocational Classes for young women, devoted to instruction and training for Housekeeping occupations, should be provided in all the cities and towns. Attendance at these during at least one period per week should be continued until after 18 years of age unless the girl is receiving some other form of education. Particulars regarding this kind of education will be found in Chapter X on Schools for Housekeeping.

DIVISION II.—CO-ORDINATE TECHNICAL CLASSES (OR SCHOOLS).

Qualifications for admission:—

Age 14 to 16 years and over;

Completion of the work of the Elementary School or ability to read, write, draw and calculate to the satisfaction of the Principal or the Committee on Admission.

Completion of at least one year of the Intermediate Industrial Classes would be most advantageous.

*Courses:—*Four years.

NOTES:—

The work and study should provide series of experiences at school arranged to fit in with the experiences at the workshop.

Preferably the whole of the first year to be devoted to school work. During that year the work to be done would be similar to that of the second year of the Intermediate Industrial Classes with particular regard, in the "doing things" part of the work, to the particular trade or occupation to be followed by the pupil.

The following three years to be devoted to school and workshop experience, about half time each, preferably alternating the attendance week about.

For the workers in trades in which there are periods of slackness or "no work", the alternate periods might be made to suit the conditions of the trade. For example, in some of the building trades the summer months might be spent continuously at work, and some months in the winter continuously at school.

Types of Schools similar to those in this Division which should be studied from Part III in connection herewith:—

Part-time or Half-time Co-operative Industrial Schools of United States;

The Co-operative High School, Fitchburg, Mass.;

Co-operative Industrial School, Beverley, Mass.;

The Worcester Trade School, Worcester, Mass.;

The Co-operative High School, Cincinnati, Ohio;

Smith's Agricultural School and Northampton School of Technology, Northampton, Mass.

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DIVISION III.—MIDDLE TECHNICAL CLASSES (OR SCHOOLS).

Qualifications for admission:—

Age 15 and over;

Experience of not less than one year actually working at a trade or skilled occupation;

Ability to read, write, draw and calculate to the satisfaction of the Principal or the Committee on Admission;

Assurance that the applicant will devote not less than one school term to Day Classes.

Separate classes for boys, men, girls, and women.

*Courses:—*One, two, three and four years.

Classes for workers as follows:—

(a) Apprentices and other learners;

(b) Skilled workmen and workwomen;

(c) Foremen and Superintendents.

The Courses would provide for series of experiences in proper sequence, arranged to enable the student to acquire:—

(1) A wider knowledge of the principles underlying the operations or the processes of the trade or business;

(2) A wider range of knowledge and skill in the handling of materials, the use of tools, the operation of machines and the manufacture and construction of products.

NOTES:—

The full-time classes would be as above indicated, with Continuation Classes in the day or evening for those who are at work and unable to attend in the day time continuously.

In towns and the smaller cities the Courses of this school might be given in connection with the scientific and industrial departments of a Technical High School, or they might be organized in separate premises.

It is necessary to distinguish between the kind of instruction and demonstration to be provided for adult pupils, who have had considerable experience in practical work, and the kind of educational help to be given to pupils at Intermediate Industrial Classes and Technical High Schools.

When the adult pupils meet the Instructor they know the "How" of some industrial operations. They need chiefly instruction, by way of explanations, information and study, to enable them to understand the "Why," and some opportunity to acquire wider skill and technique. On the other hand, it is desirable that the young pupils, who are without practical experience of workshops, should be put to working out problems for themselves rather than that they should receive full information in a pre-digested state.

Types of Schools similar to those in this Division which should be studied from Part III in connection herewith:—

Polytechnics and Monotechnics in London, England;

Municipal Technical Institutes:

Manchester;

Leeds;

Halifax;

Barrow-in-Furness.

Central Institutions in Scotland;

Cowden Beath Mining School, Scotland;

Galashiels Technical College, Scotland;

Municipal Technical Institute, Belfast, Ireland.

France:

Courses under Syndicates, Paris;

National Schools of Arts and Trades;

Lower and Middle Technical Schools of Germany;

The Technikum at Winterthur, Switzerland;

Lowell Textile School, Lowell, Mass.,

New Bedford Textile School, Mass.;

Schools for Miners;

Schools for Fishermen;

Schools of Navigation;

Schools for Tanning and Leather Industries.

FOR WOMEN ALSO.

A Middle Technical School should provide special Courses and Classes for Housekeeping, particularly for women who can devote from 3 months to one year continuously to attendance at classes for the purpose of qualifying as houseworkers and housekeepers for private homes or for institutions. (See Chapter X.)

DIVISION IV.—APPRENTICES' SCHOOLS IN WORKS OR SHOPS.

Types of Schools similar to those in this Division which should be studied in connection herewith:—

Classes in the shops of the Canadian Pacific Railway Company at Montreal, Que.;

Classes in the shops of the Grand Trunk Railway Company at Stratford, Ont.;

Classes in the shops of the General Electric Company, West Lynn, Mass.;

Classes in the shops of Brown & Sharpe, Providence, Rhode Island.

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DIVISION V.—INDUSTRIAL AND TECHNICAL INSTITUTES.

Types of schools similar to those in this Division which should be studied from Part III in connection herewith:

Municipal Technical Institutions of England:

London;
Manchester;
Bradford;
Leeds;
Halifax;
Barrow-in-Furness;
Accrington;
Widnes.

Central Institutions in Scotland:

Glasgow;
Edinburgh;
Aberdeen;

Municipal Technical Institutes in Ireland: Belfast; Kilkenny; Portadown.

Lower and Middle Technical Schools of Germany;

Technikum at Chemnitz, Germany;

Cooper Union, New York;

Carnegie Industrial Schools, Pittsburgh, Pa.

DIVISION VI.—EXTENSION LECTURES AND CORRESPONDENCE-STUDY COURSES.

These should be provided in connection with Technical Institutes or Technical, Housekeeping and Fine Arts Colleges, or in connection with other Central Institutions.

It is in every way desirable that systematic courses of instruction and study should be provided in such subjects as Industrial History and Economics by means of Extension Lectures and Courses of Reading. The work undertaken in the Oxford University Workingmen's Classes might be taken as illustrative of what should be attempted. That form of Oxford Extension work was based upon a Report of a Joint Committee of the University and Working-class Representatives on the relation of the University to the Higher Education of Workpeople submitted in 1908.

It is highly important that the natural leaders of industrial workers should have opportunities for thorough instruction in and study of the fundamental principles which underlie the organization of industries and society.

The arrangement of the several Courses of Correspondence-Study for industrial workers might with advantage follow the general lines which have been found successful in the work of the International Correspondence School, of Scranton, Pa.

The Correspondence-Study Courses should be supplemented by Travelling Instructors.

The University of Wisconsin has begun work which might be taken as a guide towards what should be included in Correspondence-Study Courses as soon as competent men are available.

These Courses would be especially for the benefit of those who live in places where the pupils were too few to make the organization of classes practicable.

FOR RURAL COMMUNITIES.*

DIVISION I.—INTERMEDIATE RURAL CLASSES (OR SCHOOLS).

Qualifications for admission:—

Age 13 years and over;

Completion of the work of the Elementary School, or ability to read, write, draw and calculate to the satisfaction of the Principal or a Committee on Admission.

Some of the Classes separate for boys and girls.

*Courses:—*Two years of 5 to 7 months each at the school and the rest of the year at a farm or home, according to local conditions.

The kind of work to be done at the school would provide for series of experiences in proper sequence and have regard to the conditions of farming and housekeeping in the locality.

NOTE:—

In cases where the teacher is not qualified to direct and estimate the progress and value of the work of the pupils in the Farming-Projects or the Housekeeping-Projects, a committee of one, two or three should be appointed to co-operate with the teacher. The District or County Instructors provided for under Divisions III and IV, would be competent to counsel on what to do and how to do it in these educational projects. They could assist in co-ordinating the Farming-Projects and the Housekeeping-Projects with the work at the school.

In general, the teaching at this school would prepare pupils for engaging in farming and housekeeping occupations, and for admission to the 3rd year of Rural High Schools.

DIVISION II.—RURAL HIGH SCHOOLS.

Qualifications for admission:—

Age 13 years and over;

Completion of the work of the Elementary School or ability to read, write, draw and calculate to the satisfaction of the Principal or a Committee on Admission.

Some of the Classes separate for boys and girls.

*Courses:—*Four years.

During the first two years the work to be done would be similar to that in the Intermediate Rural School, with the difference that the work at this school might continue longer each year.

*For a fuller discussion of the following Provisions, see Chapter IX on Education for Rural Communities and Chapter X on Schools for Housekeeping Purposes.

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The work to be done at the school would provide for series of experiences in proper sequence and have regard to the conditions of farming and house-keeping in the area served by it.

Science subjects would be taught particularly in the relation of their application to rural work, rural problems, and the principles underlying the systems, methods and operations of farming and housekeeping.

On the literary, social and cultural side, special attention should be given to Language, Literature, History, Physical Culture, Singing and such experiences as make for the enrichment and efficiency of intellectual and social life in rural districts.

NOTES:—

In cases where the teacher is not qualified to direct and estimate the progress and value of the work of the pupils in the Farming-Projects or the Housekeeping-Projects, a committee of one, two or three should be appointed to co-operate with the teacher. The District or County Instructors, provided for under Divisions III and IV, would be competent to counsel on what to do and how to do it in these educational projects. They could assist in co-ordinating the Farming-Projects and the Housekeeping-Projects with the work at the school.

In general, the training at this school would prepare pupils for engaging in rural occupations and housekeeping and for admission to Agricultural, House-keeping and Arts Colleges.

DIVISION III.—RESIDENT OR TRAVELLING COUNTY OR DISTRICT INSTRUCTORS
FOR FARMING.

These Instructors would carry on work similar to some of that undertaken at present by District Agricultural Representatives in Ontario and Quebec. It would be extended, according to the condition of the district, along the following lines:—

1. They (the Instructors) should act as advisers in co-ordinating the school work and the Farming-Projects carried on at home by pupils attending the Intermediate Rural Schools and the Rural High School.

2. They should arrange for short Courses of instruction for young men who do not attend an Intermediate School or the Rural High School.

Such Courses might be given at one place during two half days in the week.

That plan would enable the District Travelling Instructor to conduct one Course at each of three centres concurrently.

The Courses should be arranged in progressive sequence, and a Course of reading should be provided in connection with each Course.

3. They should provide systematic short Demonstration Courses in soils, crops, live stock, farm machinery, etc., etc., for the adult farming population.

4. As soon as practicable they should be associated with the work of a Neighborhood Improvement Association and an Illustration Farm for the locality, similar to those arranged for by the Committee on Lands of the Commission of Conservation.

NOTES:—

It is necessary to distinguish clearly and continuously between the kind of instruction and demonstration to be provided for adult pupils who are actually engaged in farming work, and the kind of educational help to be given to pupils at the Intermediate Rural Schools and the Rural High School.

When the adult pupils meet the Instructor they have had considerable experience in the doing of things, and know the "How" of farming operations. They need instruction, information and guidance to enable them to understand the "Why" of farming operations, and require suggestions, explanations and information concerning methods of management and the principles that underlie systems and methods of farming, such as preserving the fertility of soil, selection of seeds, controlling weeds, rotation of crops, management of live stock, etc.

On the other hand, it is desirable that the Instructor should let the young pupils work out problems in Farming-Projects as part of the Course to gain series of experiences arranged in proper sequence. His main helpfulness would come from giving the work to be undertaken as a Farming-Project a didactic or educational setting, from directing the sequence in which different Farming-Projects should be taken up, and by indicating sources whence the necessary information might be obtained. It is better in the case of young pupils that they should dig it out for themselves than that they should have full information presented in a pre-digested state in a lesson package.

One of the District Instructors might become a County Superintendent, supervising and correlating all the Industrial Training and Technical Education for development work within a county or larger area. After the first year or two, more than one Instructor would be required in an ordinary county area.

DIVISION IV.—RESIDENT OR TRAVELLING DISTRICT INSTRUCTRESSES FOR HOUSEKEEPING.

These might carry on work, for the housekeeping interests of the district, similar to that undertaken by the Resident or Travelling District Instructors for Farming.

1. As a beginning, a Travelling Instructress in Housekeeping might meet a class of women arranged for by a Women's Institute, or other similar organization in the locality, one half day per week for a term of 20 weeks.

The other half of the same day the Travelling Instructress might carry on work with the girls and teacher in the school (Elementary, Intermediate or High) of the locality.

2. They (the Instructresses) should be connected, in an advisory capacity, as Co-ordinators for the Housekeeping-Projects carried on at home by the pupils attending the Intermediate Rural Schools and the Rural High School.

3. They should provide demonstration lectures in cooking and house-keeping work, chiefly as a means of directing public attention towards channels along which systematic educational work could be conducted.

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4. As soon as practicable, they should be associated with the Short Courses of a County or District School or a County Housekeeping School.

5. As soon as practicable, they should be associated with the work of a Neighborhood Improvement Association and an Illustration Farm for the locality, similar to those arranged for by the Committee on Lands of the Commission of Conservation.

NOTE:—

It is important to bear in mind that there is an essential and fundamental difference between the kind of instruction and demonstration suitable for the women and that which would be advantageous to the girls in school. Practically what is said in Notes after Division III applies here.

After the first year or two, more than one Instructress would be required for an ordinary county area.

DIVISION V.—COUNTY OR DISTRICT AGRICULTURAL AND HOUSEKEEPING SCHOOLS.

These Schools would serve the rural population to some extent as the industrial population of the towns would be served by the Middle Technical Schools for apprentices, skilled workmen and workwomen, foremen and superintendents.

Courses:—One or two years, and also short Courses of from one to three months for special subjects and industries.

The Courses would provide for a series of experiences in proper sequence, arranged to enable the student to acquire:—

(1) A wider knowledge of the principles underlying the systems, methods, operations and processes of their special occupation;

(2) A wider range of knowledge and skill, in the actual management of soils, crops, live stock, products and homes; in the use of machines, tools and utensils; and in the making of things.

NOTES:—

It is necessary to distinguish between the kind of instruction and demonstration for those who are practically adult pupils, and who have had considerable experience in practical work, and the kind of educational help to be given to pupils at Intermediate and Rural High Schools. When the adult pupils meet the Instructor they have had considerable experience in the doing of things and know the "How" of farming operations. They need instruction, information and guidance to enable them to understand the "Why" of farming operations, and require suggestions, explanations and information concerning methods of management and the principles that underlie systems and methods of farming, such as preserving the fertility of soil, selection of seeds, controlling weeds, rotation of crops, keeping live-stock, etc.

On the other hand, it is desirable that the young people at the Intermediate Rural and Rural High Schools should work out problems in Farming-Projects as

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part of the Course. To them the teacher's main helpfulness would come from giving the work to be undertaken as a Farming-Project a didactic or educational setting and directing the sequence in which different Farming-Projects should be taken up, and by indicating whence the necessary information might be obtained. It is better, in the case of young pupils, that they should dig it out for themselves than that they should have full information presented in a pre-digested state in a lesson package.

These County or District Agricultural and Housekeeping Schools would be residential schools, and would be suitable places at which to provide Short Courses and Special Courses in such branches as Dairying, Fruit, Vegetable and Flower-growing, Poultry-keeping, Bee-keeping, etc.

DIVISION VI.—YOUNG PEOPLE'S SOCIAL SERVICE SCHOOLS.

The People's High Schools of Denmark have supplemented the general education of the Elementary Schools. Their object has been to develop social and patriotic qualities of a high order in individuals and communities. The Agricultural Schools grew out of them. They help to increase the attendance at all the Vocational Schools. They are regarded by the Danes themselves as among the chief factors in conserving and promoting national prosperity and strength.

They are Schools in which the pupils are in residence. The young men attend during 5 months in winter, the young women during 3 months in summer.

The Schools, in most cases, are owned and carried on by private individuals under the supervision of the State. They receive small subsidies from the Government. They charge fees. A large number of Scholarships provided by the State are available to young men and women. These Scholarships provide about one-half the total cost to a student for fees which include board and living accommodation, etc. Ordinarily, as many as one-half of the pupils attending a School may be there on Scholarships.

There are about 70 People's High Schools in Denmark. It is estimated that about 7,000 young people attend them annually. That is equal to about one in every five of all the young people who come to 18 years of age annually in the rural population.

It would appear to be highly desirable that schools of this type should be established for the rural population in Canada. A beginning might be made by providing courses for young women at a few existing institutions, such as Agricultural Colleges, or other residential schools or colleges during summer vacation periods.

They might also be organized in connection with County or District Agricultural and Housekeeping Schools, as under Division V.

Qualifications for admission:—

Between 18 and 25 years of age;

Educational attainment and character to the satisfaction of the Principal or a Committee on Admission.

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Courses:—From 3 to 5 months.

The young men and young women would not be in residence at the same time.

The Courses should be arranged and given for the purpose of cultivating and developing a sense of responsibility for life and its opportunities, social efficiency, public spirit and devotion to the country.

Emphasis should be laid upon Canadian and British History, Literature, Ability to use Books, Singing, Physical Culture, and Social Service in the community. In this connection see extended Report on People's High Schools of Denmark in Part III.

DIVISION VII.—SCHOOLS FOR AGRICULTURAL APPRENTICES.

Such schools on the Continent of Europe, in Ireland, and to a limited extent in England, pay particular attention to the training of pupils in manual dexterity and familiarity with the ordinary operations of farm work, such as ploughing, seeding, stacking, threshing, etc. The report on the Agricultural Apprentices' School at Clonakilty, in Ireland, gives as full information as may be necessary in this connection.

Only in the portions of Canada where settlement is comparatively new are Farm Schools for the purpose of teaching the ordinary farming operations necessary. In the older districts, before a pupil is admitted to the County or District Agricultural School, he should have spent long enough at practical farm work to have learned all the operations thoroughly. At the same time it is to be remembered that the actual practice of farm work in many parts of Canada is greatly below the standard of ordinary practice in England, Scotland, Germany, France and Denmark. The remedy for this state of affairs can only be gradual and comparatively slow. It may, perhaps, best be brought about through the co-ordinated Farming-Projects in connection with the Intermediate Rural School and the Rural High School. The influence and instruction of the Travelling Instructors would doubtless also have a marked effect on the skill and effectiveness with which the farm work is done.

FARM SCHOOLS.

The proper place at which to learn farming is a farm, managed as a business concern to provide a living and competence for the owner or worker. Farm Schools, where young men would learn how to do the work of farming and the methods of management, would be advantageous for people who have come to Canada from other countries without any experience of farm work under conditions similar to those of Canada or with implements and tools like those used in Canada. Particularly in the districts which are being settled by those who come from countries whose climatic or soil conditions and farming methods are different from those of Canada, it would be advantageous if a farm such as an "Illustration Farm" could be designated to receive such people for short Courses, lasting from a week at a time up to a longer period, according to their needs.

The Commission recommends for such districts an Illustration Farm on a plan somewhat similar to those arranged for by the Committee on Lands of the Commission of Conservation. It might be the headquarters of a Travelling Instructor. To supplement the information and advice which such an Instructor could give on their own farms, he could meet the newcomers in groups from time to time at the Illustration Farm, to give illustration and demonstration of the operations and methods of farming suitable to the district and to the resources of those who are settling in it. The waste of time which often occurs, the loss of crop which sometimes ensues, and the disappointment for a period of one or more years which frequently comes to the beginner, might be in a large measure prevented. Whatever would accomplish that would be of economic advantage to the whole community not merely from the immediate saving and prevention of loss, but from the ability, knowledge and spirit resultant in these new settlers. The benefit would be to the individuals themselves, to their community, and to the business and transportation interests.

DIVISION VIII.—AGRICULTURAL AND HOME ECONOMICS COLLEGES.

The work of Agricultural Colleges in Canada is discussed at length in Chapter IX on Education for Rural Communities.

In the United States extension work and the training of teachers for Agricultural Schools and for the teaching of agriculture in Secondary Schools have become important features. The University of Wisconsin is a notable example of what may be undertaken in that respect.

Types of Colleges similar to those in this Division which should be studied in connection herewith:—

Ontario Agricultural College, Guelph, Ont.;

Macdonald College, Que.;

Manitoba Agricultural College, Winnipeg, Man.;

The Agricultural Colleges of Cornell University and of the Universities of Wisconsin and Illinois.

DIVISION IX.—CORRESPONDENCE-STUDY COURSES.

These should be provided in connection with Agricultural Colleges and Housekeeping Colleges, or in connection with other Central Institutions.

The Correspondence-Study Courses might be supplemented by Travelling Instructors, and by Reading Courses.

The University of Wisconsin, which has begun work in this field, offers useful guidance.

These Courses would be specially for the benefit of those to whom it would not be convenient to attend classes arranged for by a District Instructor.

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SECTION 2: LOCAL AND PROVINCIAL DEVELOPMENT AUTHORITIES.

GENERAL CONSIDERATIONS.

1. It is important to adopt a plan which will secure the largest degree of *public confidence* and maintain the largest measure of *public interest and co-operation*.

2. It is important to adopt a plan which will preserve *Provincial control*, encourage *local initiative* and develop *local responsibility*.

3. It is important that there should be a *large number of persons* representing Manufacturing Industries, Trades, Commerce, Transportation, Agriculture, Forestry, Mining, Fisheries, Housekeeping and Education, *ready to take the initiative* in local undertakings and *able to co-operate* in making effective application to the needs of localities of financial grants and any other assistance. In the opinion of the Commission, a policy which would be applied wholly or mainly by directive authority from headquarters, leaving to local centres little initiative or responsibility, would not accomplish much for a long time.

4. It is important that there should be in each Province a *Central Body or Authority*, which could bring to bear on all proposals from local centres the wide knowledge and practical experience of *capable men and women* familiar with education and with industrial, agricultural and housekeeping problems. Such a Central Body would be able to supply information for the guidance of Local Authorities at the beginning of their work, and to furnish advisory assistance through experts of high ability. Through the meetings and discussions of such a Central Body the permanent officials charged with the administration would be kept in touch with public opinion as to the particular needs of localities, as to the *suitability and acceptability* of schemes proposed, and as to the practicability of having such schemes supported and carried out. The Central Body would also serve the purpose of a *clearing house* through which an intimate knowledge of the results from experience in one locality would be made available to other communities.

5. It is important to adopt a plan whereby the Dominion, the Provinces, the Localities and Individuals will *co-operate and each contribute* in some well-considered and equitable proportion to the cost of Development Undertakings. A plan of organization which provides for the financial support from Communities being properly articulated with financial grants from Central Authorities would tend to bring about *efficiency and stability*. A long time is required to realize upon educational work; and continuity of effort to meet recognized needs is essential. The plan should be such as would ensure concurrent progressive action in the same direction by the Central and Local Bodies. Provision should

be made for *Efficiency Audits*, in order that each Contributing Authority may be assured that the money is being used for the purpose for which it is granted, and that the work is being well done.

6. It is important to adopt a plan which will ensure that the *national interests* as well as the local points of view will be considered.

7. It is important that there should be a *Dominion Consultative Body*, through which the widest knowledge and experience could be put at the service of all the Provinces and thus be brought to bear on problems and undertakings of consequence to them all.

8. It is important that there should be a *Dominion Authority* competent to co-operate with Provincial Authorities, to provide *expert counsel* to any Province which might not be adequately organized or staffed to render service in that respect to all localities and industries within its borders, and to promote *scientific industrial research* and the diffusion of knowledge resulting therefrom.

THE COMMISSION'S RECOMMENDATIONS.

The Commission recommends that Local and Provincial Development Bodies be constituted as follows:—

I.—Local Urban Industrial Development Boards.

II.—Local Rural Development Boards.

III.—Provincial Development Councils.

IV.—Provincial Development Commissions.

The Commission further recommends the constitution of,—

V.—A Dominion Development Conference.

VI.—A Dominion Development Commission.

VII.—A Dominion Development Fund.

I.—LOCAL URBAN INDUSTRIAL DEVELOPMENT BOARDS.

DUTIES:

1. To consider by what means Industrial Training and Technical Education may be applied most advantageously to the development and improvement of workers, industries and occupations within the areas served by them severally.

2. To make proposals, applications or recommendations to a Provincial Development Council, or any other Authority constituted by the Provincial Government as competent to deal with such proposals.

3. To provide and maintain Industrial Training and Technical Education by means of institutions, classes, courses or otherwise, subject to the regulations of the Government of the Province.

4. To provide Vocational Guidance for the youth of the area by such means as they may think fit.

5. To administer any Grants received for any of the aforesaid objects.

CONSTITUTION:

As provided for by each Province by Order-in-Council or by legislation.

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SUGGESTIONS:—

Each Board to be appointed preferably by the local education or municipal Authority; or if not wholly so appointed, then to the extent of two-thirds by the local Authority or Authorities, with one-third appointed by the Provincial Authority for Industrial Training and Technical Education.

Each Board to include one or more members of the Local Education Authority and to represent:—

- (1) Employers and Employees in Manufacturing Industries, Trades, Commerce, and where they are important, Mining, Fisheries and Transportation;
- (2) Housekeeping;
- (3) Education.

Having regard to the desirability of continuity of policy, appointments to be made preferably for a term of years, a proportion of the members retiring every year, and being eligible for re-appointment.

It would likely be found expedient for each Board to constitute Committees for the more effective carrying on of its work. The main divisions would obviously be Industrial, Housekeeping, and Vocational Guidance, with such further divisions or sub-divisions as might be thought desirable.

II.—LOCAL RURAL DEVELOPMENT BOARDS.

DUTIES:

1. To consider by what means Industrial Training and Technical Education may be applied most advantageously to the development and improvement of workers, of agriculture, rural industries, housekeeping and occupations in rural communities, within the county or other areas served by them severally.

2. To make proposals, applications, or recommendations to the Provincial Development Council or any other Authority constituted by the Provincial Government as competent to deal with such proposals.

3. To provide and maintain Industrial Training and Technical Education by means of institutions, classes, courses or otherwise, subject to the regulations of the Government of the Province.

4. To administer any Grants received for any of the aforesaid objects.

CONSTITUTION:

As provided for by the Province by Order-in-Council or by legislation.

SUGGESTIONS:—

It would appear to be desirable, where local conditions permit, that a county area should be the area served by the Local Rural Development Board. In some cases it might be found expedient to combine one county with another, or with part of one or more other counties.

Each Board to be appointed, preferably two-thirds by the education Authorities or the municipal councils of the area served, with one-third appointed by the Provincial Authority for Industrial Training and Technical Education.

Each Board to represent:—

- (1) Agriculture;
- (2) Industries;
- (3) Housekeeping;
- (4) Education.

Having regard to the desirability of continuity of policy, appointments to be made for a term of years, a proportion of members retiring every year and being eligible for re-appointment.

It would likely be found expedient for each Board to constitute Committees for the more effective carrying on of its work. The main divisions would obviously be: Agricultural, Rural Industries, and Housekeeping, with such further divisions or sub-divisions as might be thought desirable.

III.—PROVINCIAL DEVELOPMENT COUNCILS.

DUTIES:

1. To consider systems and schemes of Industrial Training and Technical Education for the development and improvement of workers, industries, agriculture, housekeeping and occupations within the Province.

2. To make recommendations to the Provincial Development Commission or to the Government of the Province in that connection.

3. To do such other things as may be required by the Government of the Province in relation to Industrial Training and Technical Education.

4. To make recommendations to the Dominion Development Commission.

CONSTITUTION:

As provided for by the Province by Order-in-Council or by legislation.

SUGGESTIONS:—

Two-thirds of the members might be elected by Local Development Boards, and one-third appointed by the Provincial Government to represent:—

- (1) Manufacturing Industries, Trades, Commerce, Mining, Fisheries and Transportation, (employers and employees);
- (2) Agriculture and Forestry;
- (3) Housekeeping;
- (4) Education.

Or

Members might be all appointed by the Provincial Government to represent interests as aforesaid.

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Appointments or elections to be preferably for a term of not less than six years, a proportion of the members retiring every two years, and being eligible for re-appointment or re-election.

A Provincial Development Council would doubtless find it expedient to forward its work by means of committees, such as Industrial Committee, Agricultural Committee and Housekeeping Committee, with such further divisions or sub-divisions as might be found desirable.

IV.—PROVINCIAL DEVELOPMENT COMMISSIONS.

DUTIES:

1. To consider what may be necessary for or advantageous to the development and improvement of workers, industries, agriculture, housekeeping and other occupations within the Province by means of Industrial Training and Technical Education.

2. To co-operate with the Provincial Department of Education and with other authorities within the Province for the organization, administration, and maintenance of Industrial Training and Technical Education within the Province.

3. To provide the service of experts for advising with Local Authorities and for other purposes as might be expedient.

4. To inspect and report upon the work of all classes, schools and institutions in respect to which any grant is made from public funds for Industrial Training and Technical Education; and to make recommendations to the Provincial Government in respect to the administration of any Grants or other assistance in aid of Industrial Training and Technical Education.

CONSTITUTION:

Members to be appointed by the Lieutenant-Governor-in-Council.

SECTION 3: DOMINION DEVELOPMENT BODIES AND FUND.

V.—A DOMINION DEVELOPMENT CONFERENCE.

DUTIES:

1. To consider questions of Industrial Training and Technical Education for the development of the Dominion in respect to workers, industries, agriculture, housekeeping, and occupations, referred to it by Provincial Development Councils, or any other Authorities constituted by Provincial Governments

in this relation, and to advise each Provincial Authority in regard to such questions.

2. To consider and report upon questions referred to it by the Dominion Development Commission.

CONSTITUTION:

Representative members:—

(a) Elected representatives of Provincial Development Councils.

Suggested basis of representation: 3 members from each Provincial Council, plus one member for each 300,000 population, or fraction thereof above 300,000, in the Province as determined by the latest decennial census.

Official members:—

(b) One member of each Provincial Government, or a Deputy accredited by him.

(c) One member of each Provincial Development Commission.

(d) Members of the Dominion Development Commission.

VI.—A DOMINION DEVELOPMENT COMMISSION.

DUTIES:

1. To co-operate with Provincial Development Commissions and Councils, Local Development Boards and any other Authority constituted by a Provincial Government for the development and improvement of industries, agriculture, housekeeping and occupations by means of Industrial Training and Technical Education.

2. To provide experts, whose services for counsel would be available to Provincial and Local Authorities.

3. To promote scientific Industrial Research and the diffusion of knowledge resulting therefrom.

4. To provide and maintain and to assist in providing and maintaining Central Institutions to supplement the work carried on by the Provincial and Local Development Authorities, if and when such Central Institutions are approved by the Dominion Development Conference.

5. To make recommendations for the administration of the Dominion Development Fund.

6. To report to the Governor General in Council, or to a Department of the Dominion Government.

CONSTITUTION: *

Members to be appointed by the Governor General in Council.

VII.—A DOMINION DEVELOPMENT FUND.

The Commission recommends that the sum of \$3,000,000 be provided annually for a period of ten years by the Parliament of Canada and paid annually into a Dominion Development Fund.

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NOTES:—

1. Not less than 75% of the amount paid each year into the Dominion Development Fund, from the above source, to be divided into nine portions, in proportion to the population in each of the nine Provinces as determined by the latest census, and allotted to each Province accordingly for Development Undertakings therein. Each of the said nine portions of the Fund to be administered as the "(Name of the Province) Account of the Dominion Development Fund"; and the remainder of the Fund to be administered as the "General Account of the Dominion Development Fund."

2. Any portion of the Fund allotted to a Province which may remain unearned or unpaid at the expiration of any fiscal year, to be carried forward and remain in the Account of the Province until required for Development work within such Province.

3. Any portion of the Fund in the "General Account" which may remain unexpended at the expiration of any fiscal year to be carried forward and remain in the "General Account" until required for Development work upon the recommendation of the Dominion Development Commission.

4. Payments to be made to Development Authorities in any Province, from the funds in the Account of such Province and from the funds in the "General Account", only upon the recommendation of the Dominion Development Commission.

5. In order that a Provincial Government or Local Development Authority may be entitled to receive a payment from the funds in a Provincial Account of the Dominion Development Fund, it will be necessary:—

(a) That the *Service* (that is, the Development Undertaking proposed by a Development Authority) and the *Budget*, for the fiscal year for which the payment is intended, shall have been approved by a Provincial Development Commission or other Authority constituted by the Provincial Government for that purpose; and that a copy of said *Budget* and a copy of a certificate of approval by the Provincial Authority of the proposed *Service* shall have been received by the Dominion Development Commission.

(b) That a certificate shall have such been issued by a Provincial Development Commission or other Authority recognized by the Provincial Government as competent to make an Efficiency Audit, to the effect that the said Development Authority is administering the *Service* adequately and efficiently and in accordance with the authoritative regulations; and that a copy of said Certificate of the Efficiency Audit shall have been received by the Dominion Development Commission.

6. In any case where a Development Authority has not maintained and carried out the *Service* (that is, the Development Undertaking provided for in the *Budget*) adequately and with reasonable efficiency, the certificate of the Efficiency Audit shall state the extent to which the Undertaking was not maintained and carried out in an efficient and satisfactory manner; and the certificate

shall also state whether the Development Authority is taking any steps to remedy any such deficiencies as exist.

7. If the Dominion Development Commission is not satisfied that the Development Authority is maintaining and carrying out the *Service* adequately and with reasonable efficiency, it may at its discretion deduct such amount as it thinks fit from the amount of the Grant from the Dominion Development Fund that would otherwise be payable, and give a certificate declaring its dissatisfaction and the amount of such deduction, and in that case only the amount of the Grant so reduced shall be payable to the Development Authority in question.

8. Before a payment can be made for a Development *Service*, in the second or any subsequent year of its progress, a duly audited statement in detail of the receipts from all sources for the maintenance of the said *Service* and of the actual expenditure upon said *Service* for the preceding fiscal year shall have been received by the Dominion Development Commission.

9. The Treasury may accept gifts into the Dominion Development Fund for all or any of the purposes for which payments may be made from the Accounts of the Provinces or the General Account.

SUMMARY OF THE USES OF THE FUND.

Payments should be directed to secure as speedily as is practicable:—

1. The service in each Province of an adequate supply of persons (teachers, instructors, demonstrators, executive workers) properly qualified to carry on Industrial Training and Technical Education.

SUGGESTION:—75% of the cost of training, or of securing otherwise, might be paid.

2. The establishment or extension and maintenance of Classes, Courses, Schools or other institutions or means for Industrial Training and Technical Education.

SUGGESTION:—A proportion of the salaries of teachers, instructors, demonstrators and executive workers according to approved *Budgets* might be paid, varying from one-half in cities, to two-thirds in towns, and three-quarters in villages and rural districts.

3. The provision of suitable and adequate appliances, apparatus and equipment for teaching purposes, but not including school buildings, furniture, or consumable supplies.

SUGGESTION:—75% of approved *Budgets* might be paid.

4. The provision of Scholarships to equalize opportunities to young people and other workers to profit by Classes, Courses, Schools or other institutions.

5. The provision of experts with experience in Industrial Training and Technical Education whose services for counsel would be available to Provincial and Local Authorities.

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6. The service of Central Institutions, when and where required to supplement the work carried on by the several Provincial and Local Development Authorities, either by providing and maintaining or by assisting in providing and maintaining such Central Institutions.

7. The promotion of Scientific, Industrial and Housekeeping Research and the diffusion of knowledge therefrom.

CHAPTER VIII: INDUSTRIAL TRAINING AND TECHNICAL EDUCATION IN RELATION TO APPRENTICES, FOREMEN AND LEADERS.

In Germany, France, England, Scotland, Ireland and elsewhere the avowed aim of Industrial Training and Technical Education is not only to increase the working or productive efficiency of the pupil, but to develop all his powers, to prepare him for citizenship, to improve the industries, and to render the conditions of living more satisfying. The interests of the pupils, parents, employers, the community and the State are all considered. Even when compulsory attendance at Continuation Classes is exacted, there is a definite purpose of using the school as a means to raise the whole community to a higher level of intelligence, ability and goodwill.

SECTION 1 : APPRENTICES.

APPRENTICESHIP IS DISAPPEARING.

The altered conditions of industrial work, by the organization of production through factories, have revealed the insufficiency of the traditional methods of education to meet these new conditions. New means and new opportunities are required to provide for apprentices and workmen the instruction and training for their trades. The employers are no longer able to supply those as the old master did to his apprentices.

Owing to the highly organized manner in which many industries are now conducted, and the specialization of the workers upon particular parts of the factory processes, experience of workshops alone is not a sufficient teacher for industrial efficiency. In former years the apprentices, by doing a greater variety of things, acquired the wide experience which developed technical understanding as well as skill of hand. In many factories nowadays the experience of the learner is only the doing of one thing over and over again for prolonged periods.

The use of machines reduces the need for a wide range of skill in hand-work. As the division of labor becomes more and more extreme, there is less need as well as less opportunity for the training of the all-round mechanic. The all-round mechanic is master of his work to a far greater extent than the handy laborer or machine tender.

WORKSHOP AND SCHOOL NEED EACH OTHER.

Where the factory system has been developed young men, who are to work with their hands, have a less advantageous position and opportunity after school

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than they had formerly under apprenticeship. Even in a new country like Canada, where the demand for unskilled labor is usually great in summer, they begin to feel the disadvantage. Too few of them learn to do skilled work which offers security of employment at good wages.

The applications of science to industry seem to require that the workers shall possess technical knowledge for which the opportunities in the factory do not provide, although the technical training must be carried on in close touch with the practical work. Instruction in the theory, apart from participating in the actual practical work, does not qualify the young worker. Even where technical instruction is provided in school, that alone cannot make up for the absence of systematic training outside the school. What is needed can be obtained by a combination of effort on the part of the employers, the employees and the schools. The farm, the workshop and the factory may each be utilized and improved, as commercial investments and as educational means or instrumentalities. It would thus be practicable to make the most of the further application of science to industry without sacrificing the opportunity for personal efficiency of the worker. Parents, employers and State must all unite to protect young people by providing opportunities for them to develop into good workmen and good citizens.

THE SCHOOL MUST SUPPLEMENT THE SHOP.

It is a common saying that apprenticeship is now dead. That is true in the sense that the form of the apprenticeship, with a contract specifying the duties of both sides, is now the exception rather than the rule. From a study made of this question in France about ten years ago it was learned that only about one-tenth of the boys in trades had any contract at all as apprentices.

Among the causes of the disappearance of apprenticeship under a contract are mentioned the extreme division of labor, the indifference of masters who no longer require the all-round mechanic, the new opportunities of ready employment for boys at relatively high wages, and the short-sightedness or indifference of parents who are more anxious to have the boy earn as high wages as practicable, from the beginning, than to learn a trade which would serve him in his maturity. The boy himself is not, at that age, with his judgment, will, and conscience only partially developed, a good judge of what is best for himself. In this connection it seems desirable that the school authorities, or some body such as a Local Development Board or a Vocational Committee, should come to his help.

The schools in most cases have done little to direct the attention of the youth towards the occupation to be followed or to stimulate him to seek qualification for it. They have been directed towards the vocational education of teachers, officials, professional people and the leisure class. They must now adapt themselves to the needs and circumstances of existing society, most of whose members are productive or conserving manual workers or workers with machinery.

A new system of apprenticeship must make provision that apprentices, or learners of trades, will be cared for in both the employers' establishments and in the Vocational School, and that there shall be general instruction and training as well as particular training for the occupation.

THE ESSENTIALS FOR PROGRESS IN EFFICIENCY.

After a boy has begun to earn his living, his attitude towards the means of further education has much to do with its power to serve him and its success. If he sees or thinks he sees that the subjects and work are all practically useful to him, he will believe in the school, and in consequence the school can do much more for him. Such a school, while aiming directly to increase his efficiency as a worker and a contributor through work, will nourish a proper pride in his work and skill, thus making him a better citizen. From the lessons on citizenship he will be intelligently aware, not only of his rights and duties as a member of the trade or craft, but also that his craft or trade has an honorable history. From that point of view he recognizes himself as not only a worker, to obtain all the wages he can get, but as a member of an ordered community and nation, and that the well-being of all is bound up together.

While the feature of the school, which appeals most strongly to the young apprentice, is the opportunity which it provides to enable him to become a better workman and to earn higher wages, those who have organized Continuation Schools, and those who carry them on, do not neglect the information and training which make for good citizenship. The endeavor to give instruction of a general character, without particular reference to the occupation of the boys, was not successful anywhere for any large proportion of the young people. It was not until the courses of study and work were made to centre around the occupation of the pupil that the schools began to meet the situation.

For these Schools teachers are required who have special qualifications for the practical and technical parts of the work. While the qualifications of the teachers include ability, from training and experience, for giving instruction in the technical subjects and technical part of the work, it is necessary that they should possess broad general knowledge and professional spirit regarding the occupations or trades which they represent. While the curriculum should afford the student the right training for some specific occupation, the industrial and technical training for that purpose should be woven also into the course of study of the general educational system.

NATIONAL EDUCATION ASSOCIATION.

The following are extracts from the Report of the National Education Association of the United States on *The Place of Industries in Public Education*:—

"17. The basic standard of judgment should be its (education's) effect upon the health, efficiency and intellectual vigor of the youth of the nation. Until educators and school authorities are ready to accept these fundamentals, 'groping in the dark' and confusion as to essential principles will continue.

"18. With the progress of time the ideal of personal culture has been largely modified or replaced by that of efficiency. According to this aim education concerns itself with preparing for life rather than in cultivating all the powers of the child.

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"If education is to prepare for life, it must begin by preparing to make a livelihood, and the vocations of the vast majority of those whom a democratic society would educate involve forms of handwork and industry in which the school can give an extensive training. Such training is becoming increasingly necessary because of changes in the industrial life that tend to check or to destroy the apprentice system, and because this life is continually becoming more complicated and difficult to understand without specially direct study. Thus the school is being forced to take up vocational training in a great variety of occupations hitherto prepared for adequately in other ways, for the negative reason that the other ways are disappearing, and the positive one that it alone is capable of furnishing a training suited to modern needs."

WIDE AIMS OF THE SCHOOL.

The objects of the Continuation Schools of Scotland, as set forth in Circular 426 of the Scotch Education Department, embody what we found to be the dominant aim in all countries which we visited. These are as follows:—

(1) The maintenance and improvement of the health and physique of young people.

(2) The broadening and refining of their interests and sympathies by the influence of good literature.

(3) The equipping them with a competent knowledge of some craft, industry or occupation which offers a reasonable chance of providing a means of livelihood in adult years.

(4) The inculcation of the responsibilities and duties of communal life as well as of its rights and privileges.

Industrial and Technical Training alone may promote merely the egotistical or greedy and selfish side of man. It is recognized as necessary that the school work should widen the knowledge of other trades and even of other nations, and enhance the individual's appreciation of his duties as well as his rights in the community and the nation. The Elementary Schools cannot do this fully, principally because of limitation of time and the age of their pupils. The Continuation Schools can and should do it.

In addition to the regular class-room work and shop practice of the Continuation Schools, efforts are made to develop the social capacities of the pupils. The pupils are encouraged to make use of books out of the public libraries. Interesting as well as instructive lectures are provided, and there are walks and excursions for pleasure as well as for acquiring information.

APPRENTICESHIP IN GERMANY.

Germany has reorganized the old-time apprenticeship system and combined it with Continuation Schools having courses directly related to the occupations, and has also reorganized the Trade Guilds chiefly for the purpose of improving apprenticeship. In that country there is considerable conflict between the two systems of industry—the factory system for production on a large scale and the

handicraft system for small trades. The change from the handicraft system to the factory system is looked upon by many as a real misfortune. Such persons hold that the increased volume of trade and apparent prosperity are not adequate compensation for the loss to the community in the altered character and attitude of the producing workers.

In many trades in Germany it is still the proper thing for a boy, who has his living to earn, to learn a trade and to do it in the old-fashioned way by means of apprenticeship. There, as in Canada, there is some doubt regarding the profitability of apprentices; and some shops, believing them unprofitable, refuse to take them and recruit their forces from men trained elsewhere.

Apprenticeship papers are a contract binding on both parties, which neither may break except for the most serious reason, although it may of course be dissolved by mutual consent. Apprenticeship commonly begins at the age of 14, which marks the close of the compulsory full-time school period. The term varies between 3 and 4 years. At the same time men of mature years may be trained as operators of special machines without the signing of apprenticeship papers.

TRADE GUILDS IN GERMANY.

Since 1881 there have been a succession of laws in Germany, giving voluntary Guilds of various trades a privileged position, and in some measure transferring from the State itself to the Guilds the care of the organization of labor in the small trades. By the law of 1897 the main provisions regarding trade Guilds, journeymen, and apprentices were consolidated and some important changes were made.

Persons carrying on trades on their own account can form Guilds for the advancement of their common trade interests. The chief objects of these Guilds are: (a) the cultivation of professional pride among the members of the trade; (b) the maintenance of friendly relations between the employers and their employees; (c) the assistance of unemployed journeymen to find work and aiding them during the period of their non-employment; (d) the making of all regulations and conditions of apprenticeship and caring for the technical and moral education of apprentices; (e) the adjustment of disputes between members of the Guild and their apprentices.

In seeking to attain these objects the Guilds are recommended to proceed by the following means:—

(1) Establishing and developing good standards of character and conduct (in industry and morals) of masters, journeymen and apprentices, and particularly the maintaining of technical schools and the framing of regulations for their administration;

(2) Determining the qualifications of persons who may become masters and the conditions under which they may become such and examinations in connection therewith;

(3) Creating a fund to assist members of the Guild, their families, journeymen, apprentices and helpers in cases of sickness, death, etc.;

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(4) The organization of tribunals for arbitration, to take the place of the ordinary arbitration authorities, for the adjustment of disputes between members and their employees;

(5) The formation of a general business organization to advance the trades for which the Guilds exist.

Membership in the Guilds cannot be refused to anyone fulfilling the legal and statutory requirements, nor can anyone be admitted without fulfilling those conditions. In the main the membership is limited to the following:—

(1) Persons who practise in the district on their own account the trade for which the Guild was created; (2) Those who hold the position of foreman or a similar office in an establishment; (3) Those who have fulfilled the conditions of those two classes but have ceased to work without taking up any other trade; (4) Handicraftsmen working for wages in industrial and agricultural pursuits; (5) Other persons admitted as honorary members.

THE GUILDS AND SCHOOLS.

When the Guild undertakes to maintain a technical school, the local authorities usually place a suitable building at its disposal and also heat and care for it. Usually they also give a grant towards its maintenance. The Instructors for the most part are members of the Guild who are actually following the trade. That keeps the instruction close to the actual needs of the trade. As these schools come more and more under the control of the public authorities the course of study and work is being broadened to develop the qualities of the students as individuals and as citizens.

FIRST ATTEMPTS OF CONTINUATION SCHOOLS.

As long ago as the middle of the last century many of the ordinary Sunday schools in Prussia, Wurttemberg and Baden were converted into Trade Sunday Schools, that is, schools where those who had begun to learn their trade could receive theoretical and educational instruction to supplement the knowledge which they acquired in the shops. The first results with such Continuation Schools were not satisfying or encouraging. That was due, chiefly, to the fact that the teachers were the Elementary School teachers and their methods were not suited to the more advanced age and experience of their pupils. It was only when the courses of study and work were made to centre around the occupation of the pupil, and teachers were appointed with special qualifications, that the schools began to go forward and to realize the purpose for which they were intended. Then for a time the stress laid upon the technical and occupational needs of the pupils seemed likely to prevent the schools from serving their purpose in improving the citizenship. During the last ten years more attention has been paid to providing in the schools the kinds of experience which will realize all the objects and possibilities.

THE LAW AS TO APPRENTICESHIP.

The law regarding apprenticeship shows a keen solicitude on the part of the State for the preservation of the apprenticeship system, whereby the apprentices shall be thoroughly trained for their work. It defines those persons who have the right to engage apprentices, specifies the length of the apprentice period, makes provision for the apprentice being admitted to the examination for a journeyman's certificate, and provides for the constitution of the examining boards, consisting of a president appointed by the Chamber of Trades and representatives of the Guilds and of the Journeymen's Commission. It outlines the duties of the employer in relation to the apprentice. These are chiefly as follows:—He must instruct the apprentice in all matters relating to his trade, require him to attend an industrial or trade Continuation School, make sure that he applies himself zealously and conducts himself properly, seek to guard him against the formation of bad habits and to protect him from ill-treatment. The employer must personally direct the work of the apprentice or place him under the direction of a competent person charged with his special instruction.

The Guilds provide for an Apprenticeship Commission. Its duty is to see that the conditions of apprenticeship are carried out faithfully on both sides. For this purpose they visit the shops at least once a year to satisfy themselves in respect to those matters.

This subject is dealt with more fully in the Report on Germany.

SECTION 2 : FOREMEN AND LEADERS.

DIFFERENT KINDS OF EFFICIENCY.

All the evidence which has come to the Commission indicates that workers who have been trained in a shop or factory, in connection with the instruction and experience of Industrial and Technical Courses, are more efficient than those who are not so trained. The wages which the technically educated earn are confirmation of that.

While the interests of the employer and the employee alike require efficiency in the doing of work, it is recognized more and more that there is a difference between industrial efficiency and technical efficiency. Industrial efficiency may represent ability to do work quickly and well, while technical efficiency may represent ability to plan, to understand, and so to direct the activities and operations to advantage. There is an essential difference between industrial technique and industrial intelligence, as there is between skill of hand and the scientific spirit in work. As far as possible the aim of Industrial Training and Technical Education should be to develop both kinds of ability. From them result power and willingness to render efficient service.

TENDENCY TO LEAVE MANUAL WORK.

The remark is frequently heard that Technical Education makes men desire to leave industrial and technical work which involves manual labour.

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When the desire exists it may come from ambition to reach a position which is better paid and which is generally regarded as giving a higher social status. When a man from the shops seeks to qualify for the draughting room, or a clerking position, the Technical Classes will give the requisite knowledge and training.

At the Technikum at Chemnitz the question of providing a one-year course, directly planned to improve the ability and skill of the workmen in their craft, has been under consideration for the purpose of correcting or counteracting the tendency of the two-year course to make those who take it leave the skilled occupations of the workshops. In other places efforts are being made to counteract the desire to leave the manual occupation by providing more handwork in connection with the classes, and more opportunity whereby the pupil would widen his range of skill and knowledge by the use of materials, tools and machines.

At bottom the question seems to be similar to that arising from the courses of study in Elementary and Secondary Schools. It has been urged that the absence of opportunity to participate in handwork, and to acquire ability and skill to do it well, has caused the pupils to lose interest in and turn away from occupations of a constructive and handworking kind. The remedy does not seem to be through withholding intellectual instruction, but rather through making all the studies have an evident relation to some form of constructive manipulative work in which the student is directly interested through his occupation. The only way to make a man like his work is to make him understand it thoroughly and to possess the ability to do it well.

In reply to a question as to whether the Continuation Schools made the pupils turn from handwork, Dr. Kerschensteiner of Munich said that it depends on the organization of the school. If the school is so organized that a pupil can attain more manual skill in doing artistic work, he gets to love the artistic work more and more; but everywhere schools have been too theoretical. The teacher is constantly seeking to make his instruction wider and more thorough, and thus pushes the pupil, at first unintentionally, beyond the limits of artisanship. But as it is impossible for a trade to flourish which is being automatically drained of its most intelligent members, it must be a fundamental principle, in the organization of all technical schools, to preserve the pupils' joy and interest in personal manual work. Dr. Kerschensteiner insisted that it is constantly necessary to advise the pupils on leaving school not to crowd into the offices, but to seek positions in the workshops, which stand higher in repute and are better paid than the former.

QUALITIES REQUIRED IN FOREMEN.

Of course a number of men as they gain experience are promoted upward to positions as foremen. It is through skilled labor of the mechanical sort that the majority of young men advance to and enter the rank of managerial labor. The development of aptitude and ability for management is not dependent upon formal training of any kind. Successful management requires qualities of personality, of temperament and of force of character. Training cannot produce those, although it may improve the power of them for application.

Another element of managerial ability is the social product of intercourse with others, particularly the social results of games, and of participation in the activities of clubs and other organizations. A third qualification rests upon and arises from thoroughness of knowledge of all the facts which make up the situation to be managed, and of the relation between these facts and of the significance of each of them.

The qualities required in foremen are,—to get the largest output of work from the men under them; to keep the plant in good working order and as fully occupied as practicable; to maintain shop discipline and a state of goodwill and friendliness among the workers; and to carry on the work with such co-operation with the foremen in other departments, and in accordance with the instruction and policy of the full establishment, as to make for low cost of product and for quality and finish of product up to the standards required.

Similar qualities of temperament and character are required in the superintendents in addition to the knowledge, scientific spirit and power of judgment which have been developed by the course of training and study at the higher institutions for technical education or by practical experience in work. In the case of some superintendents, practical experience in the work enables them to make such use of the instructions and knowledge, obtained at Evening Classes and Technical Institutes, that the sum-total of their knowledge and ability equals or even excels the qualifications of those who have received a longer and more thorough school education but are without much practical experience of workmanship or management.

TRAINING OF MASTER WORKMEN.

A great deal of provision is made in Germany for the further training of apprentices who have completed their course and become full journeymen. These courses are provided either in connection with the Continuation Schools or other schools which go under the name of Fachschulen or Werkmeister Schools. There is also liberal provision for the further training of masters. In Prussia in 1900, the sum of 97,000 marks was provided for the organization and support of Master Courses and for exhibitions of machinery and tools for the commercial industries of Hanover and Posen. The appropriation for 1908 in Prussia, for eight institutions giving Master Courses, amounted to 767,698 marks. In the same year 40,790 marks were provided for shorter courses, and 32,261 marks for special Master Courses in the Technical Schools. The Prussian Government also contributed the sum of 142,246 marks to the support of exhibition halls containing all sorts of raw materials, fully and half manufactured materials, tools and special sorts of work, machines, etc.

The greater Master Courses continue from 4 to 6 weeks. The shorter Courses continue from 10 to 14 days. These latter are for the purpose of teaching special technique. The workmen often receive travelling expenses, and even wages, while attending these courses.

In connection with the exhibitions and industrial museums, lectures are provided by technical men at regular intervals, sometimes at the institution

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itself and in other places in the district. Travelling instructors are also provided who go from place to place giving instruction in the handicrafts.

DR. HERMANN SCHNEIDER'S OPINION.

Dr. Hermann Schneider, Dean of the College of Engineering, University of Cincinnati, is recognized as the foremost, as he was the first, leader in the movement for Co-operative or Co-ordinated Technical Education. The Commission is indebted to Dr. Schneider for much information of value furnished in discussions of the question. Part of that has been woven into the text of the Report in connection with Co-ordinated Classes or Schools. The following paragraphs are taken from his article "Education and Industrial Peace" as published in the Annals of the American Academy of Political and Social Science, November 1912.

THE LEADER.

The leader emerges from the mass. There is no known rule of heredity for personality, for intrinsic quality. There is a divine right of leadership, but it does not descend from father to son; it is conferred in utter disregard of wealth, creed, name, condition or caste—and it is non-transferable. The personality which creates leadership pushes instinctively above the dead level, above mediocrity; and the fight up through the mass is what gives the leader the strength to supplement personality.

EDUCATION AND THE LEADER.

The leaders who devise and direct in industry are usually men who left school when they were about fourteen years old and went to work at the bottom. Their schooling has consisted of elementary work in reading, writing and arithmetic. Plunged into the competitive struggle for a living, with nothing but their innate resources to fall back upon, their wits were sharpened and their natural gifts of planning for and directing others stood out in bold relief. They advanced step by step, acquiring the two main essentials for shop management, a detailed knowledge of practical shop processes and an expertness in handling men. Many of them have become well "educated," that is, well and widely informed and able to think solely by their own efforts.

It is entirely safe to say that our present system of organized education has had very little influence in the training of those who actually manage the operations in factories, except as it has furnished them material science as a tool of operation. This is not a surprising fact, for the brains and the personality necessary to leadership are just as likely to be born in the alley as on the avenue, and their chances for an accession of strength through overcoming obstacles are greater in the alley than on the avenue. And since the number of men graduating from college is almost a negligible percentum of those who grow up and work, the cause is obvious. So then our formally organized system of education has had little to do with the training of those who devise and direct industrial work. We (in education) do not train the industrial leaders; they are trained by industry itself. There are of course the usual exceptions.

EDUCATION OF THE LEADER.

Now since the leader emerges from the mass, and since he gives evidence of his leadership in industry rather than in the school, it is evident that education must seek some connection with industry to obtain him; and since the detailed knowledge of practical affairs essential to industrial management can be obtained only under industrial conditions, the further need of a tie between education and industry is evident. Industry and education must work together, therefore, to meet the problem of industrial unrest, and each has its separate but co-ordinated functions. Industry through the competitive processes in its daily tasks searches out the leader and gives him his practical training. Education implants in him the three fundamental principles of sound building together with the necessary material sciences of his profession. Further, the need of this tie between education and industry is imperative since bread and butter necessities and parental misguidance drive thousands to work at an early age.

Surely education can perform no greater service to humanity than to seek out men of ability and train them to devise and direct in such a way that life, liberty, and the pursuit of happiness shall be natural results of the day's work.

SCHOOL FOR INDUSTRIAL FOREMEN AT MASSACHUSETTS INSTITUTE OF TECHNOLOGY.

While a great deal has been said of late years of captains of industry, the efficiency of the industrial arts depends in very large measure, and probably to a constantly increasing extent, upon the capacity of its non-commissioned officers—in other words, upon the foremen. These men receive the same education today as the ordinary mechanic, and it has been thought that it would be a great benefit to the community at large if they could have some instruction in the principles of applied science, so that they might understand more thoroughly the work they are superintending, and be ready to apply improvements. It is also felt that a better educated class of foremen would be a benefit to the community socially, as an intermediary class between the employer or engineer on the one hand, and the workmen on the other. To attempt to train young men separately for the positions of foremen would be, under the existing organization of labor, an impossibility. The foremen must continue, for the present at least, to be promoted from among the workmen. In giving them such an education as is desired, it is necessary to take men who are already working at their trade. As a rule instruction can be given to such persons only in the evening.

With this object it was decided seven years ago to substitute for the advanced Courses, which had been given by the Lowell Institute for a third of a century, a School for Industrial Foremen which is open, free of charge, to young men who are ambitious and well fitted to profit by the instruction; the term "Foremen" being used in its broad meaning.

To be admitted to the first-year Course the applicant must be at least 18 years of age, and must pass satisfactorily entrance examinations in Arithmetic (including the Metric System), Elementary Algebra, Plane Geometry, and Mechanical Drawing. These examinations may be, in a measure, of a competitive nature, and considerable weight is attached to the applicant's occupation and practical experience. The Courses are open to those only who are ambitious and willing to study. The character and amount of the instruction is such that, if the student is not well fitted to take up the work of the School, it will not be possible for him to derive full benefit from the Lowell Course, or perhaps to maintain his standing.

The scholarship of the students, and their ability to continue the Courses, are determined in part by examinations, but considerable weight is given to the term's work. Those students who fail to keep well up with the work or to profit sufficiently by the instruction are informed that they are not qualified to pursue the Course advantageously. Those who complete satisfactorily the required Courses of the two years and pass the examinations are given graduate certificates.

THE COURSES OF INSTRUCTION.

The School comprises, at present, two Courses, one Mechanical and the other Electrical. Each extends over two years. These Courses are intended

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to bring the systematic study of applied science within the reach of young men who are following industrial pursuits and desire to fit themselves for higher positions, but are unable to attend Courses during the day. The subjects included in the Courses are as follows:

FIRST YEAR COURSE.

Mathematics.....	56 hours.
Physics.....	33 "
Electricity.....	28 "
Mechanism.....	34 "
Drawing.....	40 "
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Total.....	191 hours.

The schedule for the first year is the same for both the Mechanical and the Electrical Course.

SECOND YEAR MECHANICAL COURSE.

Elements of Thermodynamics, the Steam Engine, and Boilers.....	38 hours.
Valve Gears.....	10 "
Applied Mechanics.....	38 "
Elementary Hydraulics.....	10 "
Testing Laboratory (Resistance of Materials)....	12 "
Steam and Hydraulic Laboratory.....	24 "
Mechanism Design.....	12 "
Elementary Machine Design.....	60 "
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Total.....	204 hours.

SECOND YEAR ELECTRICAL COURSE.

Elements of Thermodynamics, the Steam Engine, and Boilers.....	38 hours.
Valve Gears.....	10 "
Steam Laboratory.....	16 "
Direct Current Machinery.....	12 "
Alternating Currents.....	22 "
Electric Distribution.....	30 "
Electrical Testing (Laboratory).....	24 "
Laboratory of Dynamo Electric Machinery.....	48 "
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Total.....	200 hours.

It is the aim to adapt the Courses to the men for whom the instruction is intended and to include the study of those principles with which they are not likely to become familiar in practice, and which will give them a fundamental training in those matters that will be of the greatest value to them in the work in which they are engaged.

The instruction embraces recitations, lectures, drawing-room practice, and laboratory exercises. It is given by members of the instructing staff of the Institute of Technology. Many of the lectures are fully illustrated by apparatus and experiments. Written tests are given from time to time, and problems are assigned for home work at nearly every exercise. Text books are used in many of the subjects; but in some of the work, where the instruction differs widely from available books, printed notes are supplied to the students at cost.

CHAPTER IX: EDUCATION FOR RURAL COMMUNITIES.

INTRODUCTORY.

Canada is not wholly free from anxiety regarding the movement of population from the open country into towns and cities.

The total population increased from 5,371,315 in 1901 to 7,204,838 in 1911 or 34 per cent. From 1901 to 1911 the urban population increased from 2,021,799 to 3,280,444 or 62 per cent; the rural population in the same period increased from 3,259,516 to 3,924,394 or 20 per cent. That is to say, notwithstanding the opening up and occupation of vast areas of virgin land in the western Provinces, the total rural population of Canada increased during ten years by 664,878 while during the same period the urban population increased by 1,258,645.

A similar movement of population from the country to the towns is going on in the other countries visited with the exception of Denmark.

Among the undisputed factors which cause a flow of population from agriculture to other occupations are: (1) the use of improved machinery, whereby the number of units of human labor required on land to produce a given quantity of food is less than formerly; (2) the desire of some farmers to leave the rural parts for towns and cities to obtain what they think to be a better chance for the education of the children; (3) the fact that money circulates more freely in towns than in the country; (4) the attractiveness to young people of the amusements and excitements afforded by town and city life.

QUALITIES OF COUNTRY LIFE AND AGRICULTURE.

Difference of opinion may exist as to remedies, but there is substantial agreement as to the desirability of having a large percentage of the population living in the country, engaged in agriculture and other rural occupations. Four chief considerations are urged in that behalf:

(1) Country life contributes to the virility of the race in body, mind and morals.

(2) Agriculture is a means of creating wealth annually out of the resources of nature without consequent exhaustion of the fertility of the soil. Countries where agriculture is centuries old, such as England, Scotland, France and Germany, report yields of crops higher on the average per acre than at any previous time in their history.

(3) Successful farming maintains a basis for prosperity in manufacturing, transportation and other businesses; and affords stable support to all prudent national undertakings.

(4) The increased cost of living in towns and cities is a pressing problem. A larger production of food-stuffs in Canada might not at once reduce materially

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the retail prices; but the further organization of producers and consumers, for doing business closer together, would reduce the amounts which are absorbed during the progress of the food products from the farm to the consumer's table.

The chief forms of satisfaction which any worker seeks to obtain by labor are possession of material things, opportunity for social enjoyments, and pleasure from doing the work itself, in addition to the wages or money returns from the product. Whatever enables the rural population to obtain worthy satisfactions in these respects is to be sought for their benefit, and likewise for the advantage of the country as a whole.

Nothing can be done by legislation to compel people to stay in the country, but much may be done by education to cause them to prefer to stay there. The saying: "Where there is no vision the people perish" was never truer than at present in its application to the movement from the country and the attenuation of rural life in Canada.

EDUCATION BY SELF-HELP.

Whether the movement of population at present flowing from rural to urban areas goes on, ceases, or takes an opposite direction, the rural communities for their own sakes are entitled to and must have education suited to the needs of all their members. Education cannot be conferred upon them; it may not be beneficially imposed upon them; it must be evolved by themselves by self-help, if need be by some measure of self-sacrifice, with the co-operating assistance of Governments.

The conservation of a vigorous, intelligent and prosperous population in the country stands out among the foremost duties of the whole nation; and any necessary burden of expense for that purpose might well be undertaken as a wise national investment. The practical ends to be aimed at, as likely to be effective for the accomplishment of the national objects, are summed up in the words attributed to Sir Horace Plunkett: "Better farming, better business, better living." Acceptable instruction, adequate education, capable leadership and hearty co-operation are necessary means.

In all progressive countries education is being adjusted to meet the needs of the children of the rural population, to interest them in rural life and to qualify them to follow it with advantage; and keen attention is being directed to means for the instruction and guidance of the adult population. France, Germany and Denmark are noteworthy examples of what has been done in that respect. More recently Ireland and England are bending their energies, in some measure successfully, towards the same end. The question is significantly prominent in the United States.

UNITED STATES COUNTRY LIFE COMMISSION.

In 1910 there was published, as a United States Senate document, the Report of the Commission on Country Life. In it attention is called to the desirability of a campaign for rural progress by the holding of local, State and even National

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conferences on rural progress, designed to unite the interests of education, organization and religion into one forward movement for the rebuilding of country life. That Commission also recommends Nationalized extension work through the Colleges of Agriculture, in order to reach every person on the land with both information and inspiration. The Report says that such work should include forms of extension teaching by lectures, bulletins, reading courses, correspondence courses, demonstrations, and other means of reaching the people at home and on their farms; and that it should be designed not only to forward the business of agriculture, but sanitation, education, home-making and all the interests of country life.

NEW USE OF HOME WORK.

As the rural home and farming provide educational opportunities, whereby children can be trained into ability for the work of after life by participating in it, it may not be necessary to equip the rural school with materials, tools and utensils for practical work towards vocational efficiency to the same extent as has become necessary in the city and town schools. A better result may be obtained at less cost by including Farming-Projects and Housekeeping-Projects, to be carried on by the children at their homes, as an integral part of the school course and work. These Educational-Projects would not be of the sort that would interfere with the work of the farm or the usefulness of the boy on the farm or of the girl in the home; and they should have certain defined limits in order that the pupil might receive educational advantage from carrying them on.

HOME-PROJECTS AS PART OF COURSE.

Examples of such Educational-Projects would be doing the work and keeping the records in connection with growing an acre of corn, a seed grain plot, part of an acre of potatoes, caring for a few cows, caring for a few sheep, looking after a flock of hens, etc.

In the housekeeping department, the Housekeeping-Project, or work to be done at home, might be followed from week to week or month to month, according to the suggestion and preference of the girl's mother. One week it might be a certain part of the housekeeping work in the morning or evening or on Saturdays. The point is to have the girl pupil recognize the defined limits of the Housekeeping-Project, in order that she may have a sense of responsibility for doing it completely and doing it well, and for having her effort and her progress in it recorded and credited to her as part of the educational progress of the week or month.

Expense and other serious obstacles in the way of providing and maintaining School Gardens and Domestic Science equipment, of such a character as to give the children full opportunity to learn by doing, would thus be obviated. The Home-Project plan would bring the educational plant of the farms and the homes to the use of the school, and secure the active co-operation of the parents

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with the teachers in the industrial and technical education of the pupils for rural life. The School Garden would still have an important use, particularly in the education of the pupils between 8 and 12 years of age.

CO-ORDINATIONS BETWEEN FARM, HOME AND SCHOOL.

It would appear highly desirable that the rural teacher, after conference with the pupil and the parents, should, wherever practicable, arrange for some part of each day of the week, to be devoted by the pupil to carrying out some definite farming or housekeeping project upon the farm or at the home as part of the education. Even if the number of hours of attendance at the school building should be reduced to accomplish this end, that would seem wholly desirable in the interests of the pupil, of the home, of the farm work, of the school and of the teacher.

Such a division of work between the rural school, the farm and the home is similar to the co-ordinated work in the Co-operative or Co-ordinated Industrial Schools. Where it may be, from local conditions, out of the question to carry on much of this work with the Elementary School, it would be wholly desirable and advantageous to combine Farming-Projects and Housekeeping-Projects with the school work and study in the Intermediate Rural Schools and Rural High Schools. Home work of this sort would be a new connecting interest between the home and the school.

TEACHER SHOULD BE PERMANENT.

The Commission is aware that to carry on the Rural School in the manner suggested would require a teacher of ability, a teacher who might reasonably be expected to continue in the service of the one school for a considerable number of years. Whatever would help to bring about that condition would be entirely advantageous and wholly desirable.

Particularly in technical schools of the highest order, such as the Industrial Art Schools, and also in other technical schools abroad, not only are regular instructors given permission to follow the occupation or art in connection with which they teach, and to earn remuneration for themselves thereby, but they are encouraged to do so, in order that they may be kept in direct and active touch with the practical and business side of the industry or art. If a good farmer properly trained and qualified could at the same time be a teacher of the Rural School, particularly the Rural High School, his efficiency as a teacher and his force and influence as a leader in the locality would be increased rather than diminished. Whatever would help towards the permanency of his tenure and service as a teacher in a locality would be advantageous.

SALARIES AND RESIDENCES.

If the salaries which the people of the locality are willing to pay are not adequate to secure that end it is wise to consider what other inducements, attractions, remunerations or satisfactions might be provided for the teacher. A school residence and grounds, part of which might be used for garden purposes

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as in France, would help to retain the teacher and dispose capable young men to select teaching in the country as a permanent occupation. Particularly in the case of Rural High Schools, residences are an essential part of the educational equipment for rural communities, and under present conditions in Canada their erection and maintenance would be Development Work of great value and benefit to the State—doubtless more than Development Work which concerns itself only or chiefly with material resources and results from them.

The permanency of the service of teachers in Germany impressed the Commission as one of the strongest factors in what has brought about the efficiency of their schools. Whatever cost would be necessary, to ensure the training of the young people into ability for rural life and towards a liking for it, might be counted as a profitable investment on the part of the community and the State. Fortunate are the people who learn to use, and choose to use, their material wealth for the enrichment of life itself and the improvement of opportunities for boys and girls in the country.

THE OTHER INTERESTS TO BE CONSIDERED.

It is not enough that the adult population should be given assistance in matters directly concerned with their schools and occupations only. The experience of other countries reveals the distinction between the development of agriculture and the uplift of rural life. Every department of rural life must be taken into account.

The problems of the farm itself in regard to crops, fertility, weeds, labor and profits are foremost. Close beside them are the problems of the farm home. More than any other calling, farming is a mode of life as well as an occupation. Here the home plays an important part in the occupation as well as in the domestic and social life of the community.

The Rural School is capable of immensely greater service in ministering to the intellectual, social and spiritual needs of the population; and the instruction and training of the adolescent youth towards efficiency for rural life under educated, acceptable and capable leadership is an obligation of urgency and highest importance.

Greater facilities for, and a better public spirit towards, wholesome recreations are necessary. It is eminently important that the farming operations should be profitable; but that is not enough. It is necessary that rural life should be interesting and satisfying to young people. The exciting and even sensational entertainments and amusements of the town are a strong magnet on many natures. Competition in kind by the country in this field of distraction is neither possible nor desirable. Finer music is ever the attraction which prevails over the call of the sirens. And the taste for the pleasures of playing, working and living in the country, the capacity for helping to provide them, and the preference for staying there to enjoy them, are to be conserved and developed in youth.

CO-OPERATION IS WHOLLY BENEFICIAL.

Organized co-operation in business has been found beneficial financially, intellectually and socially. Men and women, who associate themselves for business purposes to accomplish ends for their common good, gain respect for and confidence in each other as they come together. The natural leaders find their place of willing service for the community. The benefits to the locality are not opposed to personal advantage. Individual effort finds its best opportunity in the prosperous neighborhood; and prosperity which is shared adds to the richness of living as well as to the wealth which is possessed.

It is high time for Canada to recognize the difference between the primitive conditions of the undeveloped country and the complexities of advanced rural life in a democratic civilization. The way to satisfaction and success in rural life is by pooling the intelligence, the business ability and the social spirit of the neighborhood, and then, with local, Provincial and Dominion assistance, organizing that illimitable fund of self-help for application to the community.

The problems and needs of one neighbourhood are in their essence substantially the same as those of a township, a county, a province and the nation. The national problem is so large that it seems beyond the capacity of any individual or organization. On the other hand the betterment of the situation in one neighbourhood is within the power of those who live there. That may be advanced by community effort, competent leadership, financial assistance, and the enthusiasm which finds from "something attempted, something done," new confidence and strength for wider tasks unto the perfect day.

DIFFERENT KINDS OF PROVISIONS.

Before submitting a statement of the kinds of classes and schools for Agricultural and Housekeeping Education for rural communities in Canada, a brief survey is presented of some questions in connection with Rural Elementary Schools. What has been said earlier in this Report (pages 73 to 121) regarding general elementary education applies to rural as well as urban schools; and what is said in this Chapter under the heading: "*The Sompting School in Sussex*" is applicable in the main to town and city schools also.

After statements on the teaching of Agriculture in the schools of Ontario and the Consolidation of Rural Schools in the Dominion, a brief summary is given of some forms of Agricultural Instruction and of schools in Europe and the United States. The divisions of education as well as the organization of occupations have been carried further in European countries than in Canada. Institutions and organizations for Agricultural Education are so various in kind that it would not appear to be useful, even if it were practicable, to enumerate them all or to describe many of them in detail. Different forms of service meet the varying conditions in the different countries. Race qualities and traditions, customs, family, social and national ideals, as well as conditions of farming, have played important parts in shaping institutions and policies.

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It is not intended to suggest that any form of Agricultural Education copied from abroad would serve adequately the community in the midst of which it might be established in Canada. The conditions of settlement, of farming, of roads, of social organization, of previous education and the habits of living are all to be taken into account. The name of the classes or school is of little consequence compared with the character of the work which is done. A study of the Reports on Ireland, Denmark, France and Germany is commended to supplement this Chapter.

The kinds of Provisions which are briefly considered here are as follows:

- (1) Rural Elementary Schools.
- (2) Winter Evening Classes or Schools.
- (3) Various forms of instruction in Europe.
- (4) County or District Agricultural and Housekeeping Schools of the United States.

WHAT THE COMMISSION RECOMMENDS FOR CANADA.

- (5) Intermediate Rural Classes (or Schools).
- (6) Rural High Schools.
- (7) Resident or Travelling Instructors and Instructresses.
- (8) County or District Agricultural and Housekeeping Schools.
- (9) Young People's Social Service Schools.
- (10) Schools for Agricultural Apprentices.
- (11) Agricultural Colleges.

Educational work of a most useful kind is promoted by Students' Associations and Experimental Unions and also by Travelling Scholarships.

Closely associated with the Agricultural Schools and in some cases as an integral part of them are Schools of Housekeeping. The education of girls and women for rural occupations and in rural communities has been actively promoted by organizations of women. That question is reported upon under the different countries and also in a separate Chapter on Education for Housekeeping Occupations (p. 364).

SECTION 1: RURAL ELEMENTARY SCHOOLS.

INTRODUCTION.

It is generally accepted that the proper place at which to learn farming is a farm, managed as a business concern to provide a living and a competence for the farmer. It is not so generally recognized that the proper place at which to learn how to learn to farm is a school. The real object and meaning of the school and schooling is to put the pupil in possession of himself and of knowledge for effective use.

What is said in the beginning of this Report regarding Elementary Education is applicable to Rural Elementary Schools. The limitations in numbers of

children and in the resources of the community may prevent the full equipment of all Rural Schools to the extent which is desirable, but the underlying principles, of what is recommended for Elementary Education in Chapter I, may be applied in rural communities as well as in urban communities.

In the opinion of the Commission, it is of importance that the work of Rural Schools, from the elementary grades upwards, should be of such a character that the interests of the children in their surroundings and in the activities of rural life will be preserved, deepened and enlarged.

There is general agreement as to the need for bringing the curricula of the Rural Schools into touch with the practical life of those whom the schools serve. Recent years have witnessed the introduction of Manual Instruction to take its place beside the traditional intellectual instruction. It has not yet become generally clear to teachers, parents and pupils that intellectual instruction and intellectual culture of children can be advanced better and further by means of Manual Training, School Gardens, Nature Study, Domestic Science and other practical construction and conserving work than by book studies only.

Text-books and other books serve their best purpose by supplementing the information which the pupils are led to acquire by means of observation, discussion, examination and management of work by themselves. Such books should contain a good deal of matter which will inform the children on rural questions and interest them in rural conditions and progress. The content of the courses of practical work and study should be such as to provide for series of experiences which will piece on to those which the children have had, and which will prepare and qualify them to enjoy and to prefer work and life in the country.

It is important that the kind of ability developed should be suitable to the life to be lived; and that the habits formed should be such as will make for the largest measure of satisfaction and success in country life. Frequency of experience is what forms habits, and not repetitions of instructions or information. Habits are grown in quiet ways, like the shapes of trees and the budding and ripening of fruit; they become the destiny "which shapes our ends, rough-hew them how we will".

SOME OF THE PRINCIPLES AND METHODS RECOMMENDED IN ENGLAND.

The Board of Education of England sets forth some of the principles and methods of Rural Education in a Memorandum issued for official use in 1911. These are so appropriate and suggestive for Canada that the following extracts are presented.

"It is by small beginnings from within that most of the really successful rural schools have grown into making full use of the great wealth of material which country life affords for good teaching. Often enough when he commences the teacher is conscious that he is only partially master of what he sets out to do; but, by maintaining for himself the spirit of enquiry and by learning along with his children, his powers and his courage develop until he feels himself capable of launching out upon a completely new scheme. The necessities for such a

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beginning are but two, (i) a real interest in rural affairs, and (ii) willingness and sufficient courage to try experiments and to learn from others. Thus a teacher, starting with the keeping of poultry, finds in a short time that he must join up to it light woodwork and practical arithmetic, and this leads on to correlation with Drawing and English.

"The improvement of the rural schools as places of rural teaching is so intimately connected with the personal tastes and opportunities of individual teachers that those County Authorities have, upon the whole, been most successful which have refrained from planning in any detail the manner in which the teachers are to have recourse to country life for the material of their lessons. One County Authority, for example, has encouraged its rural teachers to take up, as part of their school work, any hobby in which they are interested; with the result that bee-keeping, poultry-rearing, practical land measurements, eradication of insects injurious to the farmer or gardener, such as the ox-warble fly, rose culture, carnation culture, simple cooking and other practical developments are included in the schemes of Nature Study for the various schools.

ENGLISH.

"Where the principle is adopted that the teaching should bear upon the life the child leads and the things he understands from daily experience, it may be, and often is, applied to all the lessons of the country school. Thus, in the course of their lessons in English the children are taught to describe common objects and typical sights and sounds, the changing seasons, the harvest, the wood-cutting, the farm-yard, the hunt. In the process of learning to describe they also learn to see and to appreciate. There is still room for improvement in the reading lessons. Simplicity and truth in the description of the lives and work of country men in this and other lands are to be sought, rather than the introduction of lectures under the guise of stories. Passages of prose and verse describing country scenes could be studied more than they are—there is no lack of material—and the children could be led to some appreciation of the great writers who have written of country life, realising from their daily experience the truth of the literature, and from their literature in turn the richness and beauty of the life.

ARITHMETIC

"In the Arithmetic taught in country schools there is a steady if not rapid improvement. It now includes actual measurements in and out of school; weighing and calculations involving the weights and measures commonly used in the district; the gathering of ideas about current prices from the local newspaper, the market and elsewhere, *e.g.*, the price of corn, butter, and eggs; the cost of farming operations such as ploughing, hay-making, hedging and draining; the wages of labourers; estimates of cost of transport and haulage, by post, road, canal, and rail; quick measurement by the eye and otherwise of distances, heights, and volumes—a wall, a tree, a church spire, a hayrick; the preparation

of statements, charts, and statistics, *e.g.*, on the temperature of the school, the gallons of milk per cow, and the number of eggs per score of fowls for different periods of the year; the cost of making articles such as troughs, pens, gates, doors, etc., and of erecting simple buildings like farm sheds and Dutch barns.

GEOGRAPHY

"No one who is acquainted with modern developments in the teaching of Geography will fail to see in it a powerful aid in the work of giving to the country child an intelligent and practical interest in his surroundings. It is based largely on the observations of local conditions, climate, prevailing winds, rainfall, lowlands and hills, rivers, soils, and it traces the effect of such conditions on vegetables, on animal life, and on the occupations and activities of mankind. It needs no stretch of imagination to conceive how teaching on these lines can give interest even to the most monotonous village life. There are as yet few schools which have developed their Geography teaching far in this direction, but enough has been done to justify confident hopes for the future.

HISTORY

"History is in much the same position, except that whereas every village will afford abundant illustrations of important principles in Geography it can hardly be said that every village has a known and interesting connection with History. Still, a great deal more could be done than often is done in the teaching of local History in village schools.

NATURE STUDY

"In some counties the attempt to pursue Nature Study is almost universal, and there is no reason to complain of a want of variety in the conceptions which prevail as to the scope and content of this topic. In the schools where the teaching is best the children are taught to make and keep daily records of temperature, sunshine, winds and rain, to note the seasonal appearances of birds, fruits, crops and flowers, to study the life history of plants and common insects, caterpillars, and grubs, kept in school, and to watch the stages of their growth and decay, and with the help of drawings and paintings to build up a valuable record of their own making in their note-books. Where there is no expert knowledge to draw upon, much less is attempted, and rightly; but even in the schools least fortunate in this respect simple observations and records are made.

"Much of the Nature Study can be combined with Geography, Practical Arithmetic, and Drawing. Thus the farm and the home, the countryside and the garden lead naturally to discussions, *e.g.*, on position, slope of the ground, soil, streams, wind and weather, and the vegetable and animal life of the district. The vegetation may be expressed in a series of crop maps; articles when measured may be drawn to scale; Geometry is needed if maps of the premises and the

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district are to be prepared from observations; while drawing itself seeks to express the knowledge gained from direct contact with natural objects—twigs, buds, fruits and flowers, bulbs in various stages of growth, the life history of insects, common objects of daily use.

SCHOOL GARDENS

"The school gardens, in skilful hands, are the means of furnishing material for lessons in arithmetic and mensuration, descriptive composition and orderly records, book-keeping; and of quickening the interest and directing the attention of the scholars to the plants, flowers, trees and crops of garden and field; the influence of wind and weather; and the appearance and habits of birds and insects, especially those which are useful or harmful to the garden.

"In the Lindsey Division of Lincolnshire, where there are about 40 school gardens, a system of experimental schools has been instituted, which owes much to the initiative and enthusiasm of Mr. Christopher Turnor, a member of the County Council. An extensive use is made of handicraft methods in these schools; and in a recent report upon them, H.M. Inspector notes four points: first, that it is quite clear that the new work has aroused the children's interest; second, that in the opinion of the teachers the manual work has had a beneficial effect upon the general work of the school; third, that children who are backward in the ordinary subjects are encouraged and brightened by the discovery that they can hold their own in manual exercises; and last, that a great deal of manual skill has been acquired by the pupils at these schools.

"In Staffordshire, where eight years ago there were 3 and now there are 171 School Gardens, the Director, amongst other interesting matter, reports that there is one very successful little school where the class is taught by a Headmistress. This County directs that all the children of a school, not only those who are in the Gardening Class, shall learn about their school garden by being taken to visit it under the supervision of a teacher.

BEE-KEEPING AND POULTRY

"In an increasing number of country schools bee-keeping and poultry management are being taught. They should not be merely demonstrations by the teacher. The children should take a share in all ordinary operations so that they may be enabled to put the teaching into practice in after-school life. Moreover, they should learn something about the varieties best suited to local conditions; to recognise the pests and diseases which attack their stock and how to deal with them; and also the best ways of preparing their products—wax and honey, fowls and eggs for the market."

A SCHOOL IN NORTHUMBERLAND.

Experience at many places indicates that increase of interest and benefit to the pupils follows when some of the school work, in such subjects as Arithmetic, Nature Study and Composition, is based upon the actual work done

on the farm or in the home during the week. With children of the age of 12 it seems highly important that the theoretical, explanatory and informational content of their school work should, in point of time as well as in character of interest, be as close as may be to their practical experience in the doing of things. An example of a Rural School where this plan was carried out with admirable results was found at the *Netherwitton Council School* in Northumberland, England.

The Headmaster, Mr. Peter J. Robertson, was most enthusiastic in the effort to make school a means of interesting children in rural life and of qualifying them to do well. The School Garden contained a plot for each of the older pupils. It was in excellent condition for educational purposes and also as an illustration of what might be done in gardening in the locality.

In connection with the Nature Study work, each of the older pupils chooses a tree in spring, then makes drawings and notes from time to time, showing its growth and the changes in appearance from spring to autumn and winter.

In connection with the regular work, the pupils bring specimens of poultry, etc. to the school for discussion. They also bring weekly a copy of market reports. Then work in Arithmetic is based upon the data obtained from these reports and from visits to farms in the neighborhood.

The teacher takes the older pupils to the farms frequently, and discusses with them the operations and conditions observed, the breeds of cattle, poultry, etc. The farmers are reported to welcome these visits, and occasionally one of them will accompany the children over the fields or through the buildings.

The spirit of the school, its setting and the appreciation expressed of it in the neighborhood, made it clear that it fulfils the true function of a Rural School, as indicated by the aim of the lessons on country life.

The following statements regarding the lessons on country life and extracts from the reports of H. M. Inspectors, were furnished by Mr. Robertson, who writes:—

"I have given a detailed account of farming lessons, as at present I am devoting most of the attention to them, with the object of trying to link the school and the farm."

LESSONS ON COUNTRY LIFE.

AIM OF LESSONS—

1. To teach children to love Nature, and
2. To take an intelligent interest in Rural Pursuits.

Lessons given:—

Cattle Farming.

Principal breeds:—Aberdeen Angus, Shorthorn, Irish, Galloway, Hereford. How to distinguish the above. Beef Producers, Milk Producers.

Kinds kept in this district:—Shorthorn and Irish. Why? A full description of these, and their management.

Information obtained from children by actual observation of above animals.

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Arithmetic on above consists largely in working actual transactions in the local farmer's business. Local Market Prices are hung up in school every week.

Sheep Farming.

Principal Breeds:—Leicester, Cheviot, Black Face, Pure and Half Bred.

Kinds kept in this district:—Cheviot and Black Face.

Description and management of these.

Arithmetic similar to that on Cattle. Best wool producers and price of wool. Number of pounds in a Stone, fleeces in a Pack. Washing and shearing operations. Diseases of Sheep and Remedies.

Poultry Farming.

Chief Breeds:—Leghorn, Minorca, Buff Orpington, Wyandotte.

Best Cross Breeds.

Table Birds, Egg Producers.

Birds brought to school and examined by the children.

Care and feeding of chickens.

The success of these lessons has been largely due to the kindly help of the parents of the children.

Garden Work.

Lessons on common vegetables.

Crops weighed and measured.

Arithmetic. Areas measured. Land Surveying. Measuring of stone heaps and hay stacks, and finding value of same.

Trees.

Names of common trees of the district. Children supplied with note and sketch books. Each child takes a particular tree and visits it throughout the year, drawing sketches showing different stages in the growth of the tree.

Flowers.

Common wild flowers. Situation and date of bloom.

Grasses of the district.

Birds.

Migrants of the district. Date of coming and nesting places. Eggs *not* collected.

In lessons on birds, trees and flowers, the children tell orally, or write, what they have found out themselves, before the teacher gives the lesson.

English.

All subjects mentioned form suitable themes for Composition.

Every child brings an *Observation Paper* on Monday mornings.

Examples:—

- a. Date of first straw in the building of a nest. Time taken to complete nest and hatch young.
- b. Time various seeds take to germinate.

EXTRACTS FROM HIS MAJESTY'S INSPECTOR'S REPORTS.

"It would be hard to speak too highly of the enthusiasm and good sense which the Head Master throws into all his work.

"The attainments of the children are a testimony to the soundness of his methods, and he is to be particularly congratulated on the response which his scholars make to his efforts to interest them.

"An excellent feature of the school work, and one for which the children are well prepared by their good training, is the Nature Study. It is not at all bookish, though books are available for consultation, but consists of actual observation of animals and plants as well as of farming operations, in which the children take a lively interest."

The School Garden.

"Excellent all-round work is done here. Not only is the garden in perfect order, but it is made the means of giving concrete form to many of the school lessons. The actual experience of the boys in cropping their plots is made the base for calculations of quantities required for larger areas, both as regards seeds, manures, crops and profits.

"Practical Arithmetic is on sound lines, and the first principles of surveying have been taught with a view to practical field measuring next year."

THE SOMPTING SCHOOL IN SUSSEX.

The Commission visited a number of other Elementary Rural Schools in England and found evidence of much successful effort, particularly through Nature Study work, to direct the attention of the pupils to rural interests and to develop their ability in that direction. The case of the Sompting School in a quiet Sussex village, as described by Mr. Edmond Holmes, until recently Chief Inspector of Elementary Education for England, reveals so much that is suggestive and instructive for Canada that a brief description of some of its features is presented by means of extracts from his book "*What is and What Might be*"* and excerpts from a Paper read before an Education Club. Particular attention is directed to what is recorded on the subject of *Drawing*. That agrees with what the Commission learned, as being the judgment of the highest authorities with whom it had "Conversations", and with the practice in the best classes for Drawing, Design and Art which the Commission saw.

The extracts are as follows:—

PERCEPTION AND EXPRESSION.

Let us for a moment accept as valid a distinction which may easily become a snare and a delusion.

The perceptive faculties—those which enable us to grasp what is around us and draw it into ourselves and make it our own—seem to fall into two sub-groups. The first are the more

*Constable & Co., Ltd., (1911).

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strictly mental faculties—those by means of which we see, observe, reflect, think, reason, understand, know. The second are in greater or less degree emotional; and the emotions which tinge them may perhaps be grouped under the two comprehensive heads of sympathy and admiration (with their respective opposites).

The expressive faculties may be classified according to the channels through which they act. Of these there are four which the teacher is free to make use of. The first is *Language*. The second is *personal action*. The third is *handwork*. The fourth is *art*. Under the first head may be taught such subjects as composition, oral and written, reading aloud, recitation. Under the second head, such subjects as physical exercises, outdoor games, dancing, acting. Under the third, such subjects as carpentering, gardening, dressmaking, cooking. Under the fourth, such subjects as drawing, painting, modelling, music.

We have now to ask ourselves in what relation do the perceptive faculties stand to the expressive? Is it possible to devote this hour or half-hour to the training of perception, and that to the training of expression? Surely not. Perception and expression are not two faculties, but one. Each is the very counterpart and correlate, each is the very life and soul, of the other. Each, when divorced from the other, ceases to be its own true self. When perception is real, living, informed with personal feeling, it must needs find for itself the outlet of expression. When expression is real, living, informed with personal feeling, perception—the child's own perception of things—must needs be behind it. More than that. The perceptive faculties (at any rate in childhood) grow through the interpretation which expression gives them, and in no other way. And the expressive faculties grow by interpreting perception, and in no other way. The child who tries to draw what he sees is training his power of observation not less than his power of expression. As he passes and repasses between the object of his perception and his representation of it, there is a continuous gain both to his vision and to his technique. The more faithfully he tries to render his impression of his object, the more does that impression gain in truth and strength; and in proportion as the impression becomes truer and stronger, so does the rendering of it become more masterly and more correct.

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In the case of the child who tries to draw what he sees there is a continuous reciprocal action between perception and expression in virtue of which each in turn helps forward the evolution of the other. Even in so abstract and impersonal a subject as mathematics, the reaction of expression on perception is strong and salutary. The student who wishes to master a difficult piece of bookwork should try to write it out in his own words: in the effort to set it forth concisely and lucidly he will gradually perfect his apprehension of it. Were he to solve a difficult problem, he would probably regard his grasp of the solution as insecure and incomplete until he had succeeded in making it intelligible to another's mind. When perception is deeply tinged with emotion, as when one sees what is beautiful, or admires what is noble, the attempt to express it in language, action or art seems to be dictated by some inner necessity of one's nature. The meaning of this is that the perception itself imperatively demands expression in order that, in and through the struggle of the artistic consciousness to do full justice to it, it may gradually realize its hidden potentialities, discover its inner meaning, and find its true self.

ATTAINABLE IN ANY VILLAGE SCHOOL.

The ends which I am about to set before managers and teachers are ends which have been achieved, and are being achieved, *under entirely normal conditions*, in various parts of the country, and which are therefore not impracticable. There are many elementary schools in England in which bold and successful departures have been made from the beaten track; and in each of these cases what is at present a mere possibility for most schools has been actually realized. And there is one elementary school at least in which the beaten track has been entirely abandoned, with the result that possibilities (as I may now call them) which I might perhaps have dismissed on *a priori* grounds as too fantastic for serious consideration, have become part of the everyday life of the scholars.

* * * * *

I will now try to describe a school in which one cannot spend five minutes without feeling that the prevailing atmosphere is entirely different from that of the ordinary elementary school,—that other ideals are in the ascendant, that other ends are aimed at, that other results are being achieved.

The school belongs to a quiet Sussex village called Sompting, which lies at the foot of the South Downs, about three miles inland from Worthing. It is attended by about 120 children. The head teacher, Miss Harriet Johnson, has had charge of this school for nine or ten years. Her staff is composed of her sister, who is uncertificated, and two 'supplementary' teachers. She herself has to take all the children above Standard II. There are some fifty of these in the main room, in two groups. The premises are quite mediocre, but there is a fairly large playground.

The first thing that strikes one on entering the school, is the bright and happy look on every face. The Sussex rustic is proverbially dull, but there is no sign of dullness on any face in this school.

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ACTIVITY AND HAPPINESS.

Two things will strike the stranger who pays his first visit to this school. One is the ceaseless activity of the children. The other is the bright and happy look on every face. In too many elementary schools the children are engaged either in laboriously doing nothing—in listening, for example, with ill-concealed yawns, to *lectures* on history, geography, nature-study, and the rest; or in doing what is only one degree removed from nothing,—working mechanical sums, transcribing lists of spellings or pieces of composition, drawing diagrams which have no meaning for them, and so forth. But in this school every child is, as a rule, actively employed. And bearing in mind that “unimpeded energy” is a recognized source of happiness, the visitor will probably conjecture that there is a close connection between the activity of the children and the brightness of their faces.

There is no trace in this school of the mental lethargy, which, in spite of the ceaseless activity of the teachers, pervades the atmosphere of so many elementary schools; no trace of the fatal inertness on the part of the child, which is the outcome of five or six years of systematic repression and compulsory inaction. The air of the school is electrical with energy. We are obviously in the presence of an active and vigorous life.

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SELF-EXPRESSION.

The third thing that strikes the visitor is that the various activities that are in progress are all forms of self-expression. The child himself is behind everything that he does; and he is nearly always doing something. The number of channels of self-expression which have been opened up for the children in this school is remarkable. Here are some of them:—

- (1) *Talking*, including the free expression of opinions and experiences, the free asking of questions, formal debating, the making up of dialogues, etc.
- (2) *Written composition* of various kinds, including the making of notes by the children for their own use, descriptions of nature, the making up of stories, verses, etc.
- (3) *Reading aloud* (by individual children to the rest of the class).
- (4) *Recitation* of poetry.
- (5) *Singing*, including the old English Folk Songs, which are partly dramatic.
- (6) *Morris dancing*, which is also partly dramatic.
- (7) *Dancing*, in the ordinary sense of the word.
- (8) *Acting*, including the dramatic treatment of history, geography and even arithmetic, the dramatic interpretation of Shakespeare's dialogues, scenes from Dickens, etc.
- (9) *Drawing* with pencil, brush and chalk.
- (10) *Clay modelling*.
- (11) *Informal gardening*, including observations of plant life.
- (12) *Informal carpentering*, including the making of useful things, such as sheds and fences.
- (13) *Informal cookery*.
- (14) *Cutting out and making garments*, including the making of simple fancy costumes for the girls themselves, and armour (made of tea-paper) and other historical costumes for the boys.

Behind all these various modes of expression stands, as I have said, the child himself. The expression is always self-expression. There is no fraud about it, no hypocrisy, no cant. Miss Johnson's one idea is to help the children to educate themselves. She gives them the three things which every teacher ought to give his pupils—material, stimulus, guidance. The rest they must do for themselves. Whether she has thought out the great problem which she has solved so successfully, or whether, by the exercise of that faculty of divination with which her sex is more richly endowed than ours, she has felt her way to the true solution of it, I cannot say. But the fact remains that the whole of her work is based on the fundamental assumption that real education is self-education, and that for self-education we need, first and foremost, self-expression. In everything that she does, in everything that the children do, she gives proof of her deep-seated conviction that growth comes from within the soul, and cannot be imposed upon it from without; that the soul grows in and through the growth of its perceptive faculties; that the perceptive faculties grow by expressing themselves; and therefore—as the conclusion of the whole matter—that to foster self-expression is the first and last duty of the teacher.

HISTORY.

Let us now consider in detail how some of the subjects are taught. The treatment of *History* is in the main dramatic. When they come to an episode which leads itself to dramatic

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treatment, the older children proceed to dramatise it. With this end in view, they consult some advanced historical manual, or some historical novel, and having studied with care the particular chapter in which they are interested, they proceed to make up their own dialogues, and their own costumes and other accessories. They then act the scene, putting their own interpretation on the various parts, and receiving, as usual, the stimulus and guidance of Miss Johnson's sympathetic and helpful criticism. The rest of the class (or rather all the children in the main room) look on, with the history books open in front of them, and applaud; and, by gradually familiarising themselves with the parts, qualify themselves half-unconsciously to act as understudies in the particular scene, and in due course to play their own parts as interpreters of some other historical episode. I know of no treatment of history which is so effective as this for young children. The actual knowledge of the facts of history which a child carries away with him from an elementary school is as rule nil (for he has been spending his time listening to dull lectures which went in at one ear and out at the other), and is, in any case, a negligible quantity. But the child who has once acted history will always be interested in it, and being interested in it, will be able, without making a formal study of it, to absorb its spirit, its atmosphere, and the more significant of its facts. But the advantages of the dramatic treatment of history do not end with the subject itself. The actors in these historical scenes are expressing their own interpretation of the various parts, and their own perception of the meaning of each episode as a whole. This means that they are training, *inter alia*, two sovereign faculties—imagination and sympathy—and training them, as I can testify, with striking success: for the dramatic power which they display is remarkable, and can have been generated by nothing less than sympathetic insight into the feelings of the various historical personages and the possibilities of the various situations.

NATURE STUDY.

Nature-study has always been a prominent feature in the work of this school. Whenever a lesson is given on a given subject, e.g. on a holly leaf, every child has a specimen and a lens. They observe the characteristics of the object closely and carefully, in order to discover facts which might escape the unobservant. Having discovered these, they try to account for them. In these attempts they display much ingenuity and intelligence, and are led on by Miss Johnson in the direction of the true explanation of each phenomenon, and the relation of this to what they know of the object as a whole, and of its meaning and function. In the questions which the children ask, and in their own tentative answers to them, they express their perception of the features and properties of the object which has been placed before them. The faculty of observation grows with the attempts that are made to interpret its data (for some obscure fact, as yet unnoticed, may throw light on the meaning of one which has already been observed); and as it grows it makes a further demand on the ingenuity and intelligence of the child who exercises it. The nature ramble, in which the children make notes and sketches of what they see, is another aspect of nature study. The experimental study of plant life in the garden is a third. The drawing of beautiful natural objects is a fourth. The search for appropriate poetical questions is a fifth. The training which the child is receiving in nature-study, when it is so treated, is something more than mental. His more emotional qualities—his sympathy with other forms of life than his own, his subtle insight into, and feeling for, the general life of nature, his admiration of what is beautiful—are allowed, and therefore encouraged, to exercise themselves; and their consequent growth carries with it the general expansion of the inner life of the child.

DRAWING.

This leads me to speak of a subject in the treatment of which the advantages and possibilities of self-education are aptly and forcibly illustrated—*Drawing*. The production of outward and visible results is the last thing that Miss Johnson thinks of; and she is right to ignore it, for the only results of education that really matter are the kind and the degree of mental growth that the child has made. But whenever the production of what we call results happens to be compatible with true progress, Miss Johnson's very indifference to 'show' work makes her conspicuously successful in producing it. Now it happens that drawing is one of the subjects in which what is outward and visible, when judged by a really competent critic, gives a fairly correct idea of the inward and spiritual state of the child. And it also happens that the drawing of this school—the actual work done by the children—has been judged by one who, being in equal degrees an artist and an educationist, is unquestionably a 'really competent critic'. Of the four women who teach in this school, three cannot draw a line, and the fourth, Miss Johnson herself, is easily beaten at drawing by the more forward of her pupils. It is clear, then, that in this subject, at any rate, these children have been compelled by the force of circumstances to educate themselves. That being so, it is interesting to hear what our critic has to say about their drawings. Here is his report:—

"In this school the teaching of Drawing reaches the highest educational level I have hitherto met with in our elementary schools, and the results are the genuine expression of the children's own thoughts. Flat copies are not used, and the scholars evolve their own technique, for the head teacher, Miss Johnson, is not strong herself in this respect. The development of thought carries with it the development of skill, and this is clearly seen in the children's drawings, which

show good form and proportion, some knowledge of light and shade, a delicate and refined perception of colour, and a wonderful power of dealing with the difficulties of foreshortening. The central law is *self-effort*—confidence and self-reliance follow. The spontaneous activities of the children are duly recognized, and the latter decide what to draw, how to draw it, and the materials to be used. One cannot remain in the school long without observing the absence of that timidity, that haunting fear of making a mistake, which paralyses the minds and bodies of so many of our children. Under Miss Johnson's influence the children become acute critics. Her methods coincide so exactly with those which I have long been advocating, that I give them in her own words:—

I gave each child an ivy leaf, and said, 'Now look well at it'. We talked about its peculiarities, looking all the time, and then I told them to draw one, still looking back to the leaf from time to time. Then I examined results. A good many were, of course, faulty. In those cases I did not say, 'No, you are wrong, this is the way', and go to the black board. I said, 'In such and such a part is yours the same as the leaf? What is different? How can you alter it?', etc., etc. I make them tell me their faults. There was no black board demonstration".

THE PATH OF TRUE PROGRESS.

From a careful examination of their work it is clear that the children have not only been taught to draw, but that they love and enjoy their drawing. Form and colour are not only seen, but understood and felt. The children are impelled by an irresistible desire to reach and express the truth, and are thus carried along an ever-moving path of educative action. I am told that scholars may sometimes be seen seated on a bank in the lanes depicting some object which has attracted their attention and excited their admiration.

Could we have stronger proof than this that the path of self-education is the path of true progress?

So much for the mental training of the children. But, after all, the soul of man is not divisible into water-tight compartments; and the mental training of the child must needs affect, for good or for evil, the whole range as well as the whole course of his development. There was a time when every elementary school received a large grant for instruction and a small grant for discipline, and Inspectors were supposed to report separately on each of these aspects of the school's life. A strange misconception of the meaning and purpose of education underlay this artificial distinction; but on that we need not dwell. Were I called upon to report on the discipline of this school, my report would be brief. There is no discipline in this school. There is no need for any. Apart from his love of his teacher and his pride in his school, each child in turn is so happy in his work that the idea of being naughty never enters his head. Those energies which, when kept in a state of forced inaction, or otherwise subjected to undue constraint, break out into various forms of naughtiness, are so fully and so happily occupied that the safety-valve of misconduct has never to be used. It is patent to the most careless observer that in the atmosphere of this school—

"Love is an unerring light
And joy its own security."

"A WAY TO UNITE SCHOOL AND HOME."

It seems desirable that part of the work carried on by the pupils on the farms and in the homes after they are 12 years of age should be recognized as an integral part of the school course. At various places in Canada the Commission learned of individual teachers who gave credit, on the record of school progress, for home work outside the range of school studies. A recent publication by Mr. L. R. Alderman, State Superintendent of Public Instruction for Oregon, has come under the notice of the Commission. It contains information, of a similar character to that which has come to the knowledge of the Commission in fragmentary ways, in such a lucid and complete form that the following extracts from Mr. Alderman's pamphlet on "A Way to Unite School and Home" are presented. It will be observed that in the article by Mr. Alderman the experiences at the Spring Valley School and at the Ontario School are cited, together with extracts from a communication made by Mr. T. J. Garing, Superintendent of Education for the County of Clackamas, Oregon.

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HOW IT CAME ABOUT.

The idea of giving school credit for home work first occurred to me nine years ago when I was a school principal. I had noticed that one of my rosiest-checked, most vigorous appearing girls spent much time on the streets after school. One day Mary's mother was pointed out to me. She was a pale, nervous little woman with several children. Knowing that the family was not very well to do I felt myself burning with indignation at the circumstances that were drawing Mary away from interest in her home. I thought, "What is the use of my teaching that girl algebra and general history, when what she most needs to be taught is that her mother is her best friend and needs her help?"

At the algebra recitation the next day I announced that the lesson for the following day would consist of ten problems as usual, but that five would be from the book, and five not from the book. The five not from the book would consist for the girls of helping cook supper, helping to do up the kitchen work after supper, preparing breakfast, helping with the dishes and kitchen work after breakfast, and putting a bedroom in order. When I asked for "hands up" on all the problems the following day, I noticed that Mary kept her hand raised after the others were down. "What is it?" I asked. "I worked five in advance," she replied with sparkling eyes, "I worked five ahead in the book, besides the ten that you gave us." From that time Mary's interest in all school work was doubled. She was right up in the first rank. The rest of the year we regularly talked over the girls' home work. School public opinion encouraged the girls so that more and more reported on what they had done in house-work and sewing, and felt proud of it. Best of all, our discussions brought the school and the home together. The year was successful for all of us. More parents visited the school, and there was a concerted movement for the betterment of school conditions.

UNPROFESSIONAL TEACHERS.

The plan I have in mind will cost no money, will take but little school time, and can be put into operation in every part of the State at once. It will create a demand for expert instruction later on. It is to give school credit for industrial work done at home. The mother and father are to be recognized as teachers, and the school teacher put into the position of one who cares about the habits and tastes of the whole child. Then the teacher and the parents will have much in common. Every home has the equipment for industrial work and has someone who uses it with more or less skill.

The school has made so many demands on the home that the parents have in some cases felt that all the time of the child must be given to the school. But an important thing that the child needs along with school work is established habits of home making. What one does depends as much upon habit as upon knowledge. The criticism that is most often made upon industrial work at school is that it is so different from the work done at the home that it does not put the child into that sympathetic relation with the home, which after all is for him and the home the most important thing in the world.

But one says: "How can it be brought about? How can the school give credit for industrial work done at home?" This may be accomplished by printed slips asking the home to take account of the work that the child does at home under the instruction of the home, and explaining that credit will be given this work on the school record. These slips must be prepared for children according to age so that the child will not be asked to do too much, for it must be clearly recognized that children must have time for real play. The required tasks must not be too arduous, yet they must be real tasks. They must not be tasks that will put extra work on parents except in the matter of instruction and observation. They may well call for the care of animals, and should include garden work for both boys and girls. Credit in school for home industrial work (with the parents' consent) should count as much as any one study in school.

SPRING VALLEY SCHOOL.

A. I. O'Reilly, a young man who is just completing his third year at the Spring Valley School a county district in Polk County, determined last September (1911) to test the plan of giving credit to his pupils for the work they did at home. He went to his directors, and secured their promise to give money from the general school funds to be awarded to the pupils earning the most credit in a home-work contest. He then proceeded to work out his plans, the contest idea in bringing about the results being original with him.

The duties for which home credit is offered on Mr. O'Reilly's credit schedule are these: Building fire in the morning, 5 minutes; milking a cow, 5 minutes; cleaning out the barn, 10 minutes; splitting and carrying in wood (12 hours' supply), 10 minutes; turning cream separator, 10 minutes; cleaning horse (each horse), 10 minutes; gathering eggs, 10 minutes; feeding chickens 5 minutes; feeding pigs, 5 minutes; feeding horse, 5 minutes; feeding cows, 5 minutes; churning

butter, 10 minutes; making butter, 10 minutes; blacking stove, 5 minutes; making and baking bread, 1 hour; making biscuits, 10 minutes; preparing the breakfast for family, 30 minutes; preparing supper for family, 30 minutes; washing and wiping dishes (one meal), 15 minutes; sweeping floor, 5 minutes; dusting furniture (rugs, etc., one room), 5 minutes; scrubbing floor, 20 minutes; making beds (must be made after school), each bed 5 minutes; washing, ironing and starching own clothes that are worn at school (each week), 2 hours; bathing (each bath), 30 minutes; arriving at school with clean hands, face, teeth, and nails, and with hair combed, 10 minutes; practising music lesson (for 30 minutes), 10 minutes; retiring on or before 9 o'clock, 5 minutes; bathing and dressing baby, 10 minutes; sleeping with window boards in bedroom (each night), 5 minutes; other work not listed, reasonable credit.

All of Mr. O'Reilly's pupils, thirty-one in number, entered the contest with the vim and eagerness for which children are noted, and have faithfully kept up their home work throughout the year. The parents have co-operated by sending in the lists of work done by the children at home. Every morning Mr. O'Reilly receives these notes, which are usually written by the children and signed by the parents. Here are a few samples of parent's reports:—

Flora Mortensen,

April 17, 1912—

	<i>Min.</i>
Fed the chickens.....	5
Gathered the eggs.....	15
Set the table.....	5
Wiped the dishes.....	5
Tended flowers.....	20
Swept one floor.....	5
Was in bed before 9.....	5
Washed my teeth.....	10
Prepared one lunch.....	5

Total..... 75

Henry Davidson,

April 17, 1912—

	<i>Min.</i>
Milked cows.....	20
Curried horses.....	10
Hunted eggs.....	10
Fed chickens.....	10
Fed pigs.....	10
Fed horses.....	10
Fed cows.....	10
Cut wood.....	10
To bed before 9.....	5

Total..... 95

La Verne Holdridge,

April 16, 1912—

	<i>Min.</i>
Fed chickens.....	5
Gathered eggs.....	15
Split kindling.....	10
Carried in wood.....	15
Swept four floors.....	20
Fed one horse.....	5
Dried dishes.....	15
In bed before 9.....	5

Total..... 90

Evangeline Jennings,

April 16, 1912—

	<i>Min.</i>
Prepared supper.....	30
Washed and dried dishes.....	15
Gathered eggs.....	15
Fed the chickens.....	5
Put separator together.....	10
Turned separator.....	10
Made one bed.....	5
Cleaned my teeth.....	10
Retired before 9.....	5

Total..... 105

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Not only the girls and boys of 10, 12 and 14 years of age are interested in the contest, but the smaller children have gone into the contest with a great deal of zeal.

EXAMINED BY COUNTY SCHOOL SUPERINTENDENTS.

What was being done in the little school in Spring Valley was soon talked of. Early in December, 1911, the Portland papers discussed the novel experiment. Early in January, 1912 the county school superintendents from all over the State assembled at Salem, as is the custom twice each year, to grade examination papers. Superintendent H. C. Seymour of Polk County invited all the superintendents to visit the Spring Valley school, and provided carriages for the eight-mile drive. Excerpts from a first-hand impression of this day's visit written for the Oregon City paper by County Superintendent T. J. Gary of Clackamas County.

"These things were all of interest to us, but the one thing we were most curious to know about was the system the teacher had of giving credits for home work, not school work done at home, but all kinds of honest work a country girl or boy can find to do. Pupils were given five minutes for milking a cow, five minutes for lighting a fire, five minutes for sleeping in fresh air, five minutes for taking a bath, and so on through the long list of common duties incident to home life and country. The rule of the school is that any pupil who has earned 600 minutes may have a holiday, at the discretion of the teacher. If the pupil asks for a holiday to use for some worthy cause the teacher grants it providing it will not interfere too much with his school work. It is further provided that no pupil may have more than one holiday in 20 days.

TESTIMONY OF PARENTS.

"The chairman called upon the parents to give their testimony as to the success of the movement. I cannot write here all that was said, but will give two as fair samples of all.

One good motherly looking country woman said: 'Before this plan was started I got up in the morning and prepared breakfast for the family and after breakfast gave time to the preparation of the children for school. Now, when morning comes the girls insist upon my lying in bed so that they may get breakfast. After breakfast they wash the dishes, sweep the kitchen, and do many other things as well as make their own preparation for school. I think the plan is a success. My only fear is that it will make me lazy.'

"One father said: 'I have two boys—one in the high school and Jack, here. It was as hard work to get the older boy out in the morning as it was to do the chores, and as Jack was too young to be compelled to do the work, I let them both sleep while I did it. Now, when the alarm sounds, I hear Jack tumbling out of bed and when I get up I find the fires burning and the stock at the barn cared for, so all I have to do is to look happy, eat my breakfast, and go about my business. Yes, it is a great success in our home.'

"It is the universal testimony of the parents in this district that the children are co-operating with them, and becoming interested in their home as never before. One mother said that it seemed that her duties were reduced by half, and that the children were eager to do more, for more work meant more school credit."

TESTIMONY OF THE TEACHER.

To the question, "Does this work interfere with the work of the school?" the teacher said, "No, I find that the children have taken more interest in their school work and are making more progress than before."

"This contest plan ought to be contagious," continued the teacher, "for it is the best thing I have ever tried in the way of getting the children completely in sympathy with both school and home duties. It is not my intention to give full credit for time necessarily spent in home duties. I have explained to the children that it is best to go out into the world expecting, if necessary, to give more than they get."

"The plan is an agreement between the pupil and myself. If he fails to live up to his part of it he learns that his failure works a real hardship upon him. Perhaps I am teaching some practical law here. The plan of awards has started them on a commercial future and has resulted in my having to tell them all about savings accounts. The plan is going without a hitch."

THE ONTARIO SCHOOL.

Other schools of the State are now becoming deeply interested in the new educational field. There is not much doubt that next fall it will be introduced into a great number of schools. E. B. Conklin, city superintendent of Ontario, and W. W. Wiley, city superintendent of Athena, have gotten out printed home-work cards. Mr. Conklin's card leaves space opposite each home duty for the grade obtained for the months beginning with February of this year till the close of the term. The regular school marks are offered: F, fair; P, poor; G, good; and E, excellent. These cards are sent home with the regular monthly report card. The parent is to grade and sign the card, returning it to the teacher. The duties on the card are: Sewing and mending, bread making, general cooking, setting and serving table, washing and wiping dishes, washing and ironing, sweeping and making beds, mopping and care of kitchen, care of younger children, making fires, getting water, coal, kindling, etc., feeding stock or poultry, milking cows, barn or yard work, garden or field work, errands. This card also takes into consideration the character development of the child, and names the following to be graded by the parent: Cheerfulness, kindness, order and care of clothes, cleanliness, bathing, table manners, politeness, keeping temper, doing before told, care of language at home, off street, courtesy to parents, kindness to animals, care of playthings, home study, ambition to succeed.

* * * * *

MR. ALDERMAN'S OPINION.

On a recent visit to Ontario I was much gratified to find that Mr. Conklin's plan was working out with great success. I asked no questions concerning it at first, but before I had been in the city long a number of parents came to me with enthusiastic expressions of approval of the manner in which the plan was engaging the attention of the children, and was serving as an incentive to interest them in the duties of their home.

In my opinion the giving of school credit for home work is like opening great reservoirs of power which as yet have scarcely been tapped.

AGRICULTURE IN THE SCHOOLS OF ONTARIO.

Attempts have been made for more than 60 years to include instruction in Agriculture in the curriculum of the schools. Until the combination arrived of the School Garden, systematized Nature Study and the Trained Teacher, but little progress was made. The wide range of the agencies at work for promoting the teaching of Agriculture in the schools is set forth in a publication issued by the Department of Education, Circular No. 3, August 1912, as follows:—

In 1903. The Macdonald Institute was established at the Ontario Agricultural College, having as one of its purposes the special training of teachers in Agriculture. At this time five so-called Macdonald School Gardens were commenced in Carleton County.

In 1904. The first *Summer School for Teachers* was held at Macdonald Institute, and in the fall term the first Interprovincial Teachers' Class was held under the Macdonald Scholarship scheme.

At this date another important step was taken in the direction of Agricultural education by the incorporation of the subject of *Nature Study* into the Public School Course of Study.

At the same time, the work in Elementary Science for the first two years in the High Schools was re-arranged, giving the affairs of Agriculture—though not using the name—considerable prominence.

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IN 1907. The Government made special grants available to schools and teachers for carrying on school gardening; arrangements were made also for granting certificates in Agriculture to teachers.

IN 1909. The first Normal Teachers' Class in Elementary Agriculture and Horticulture was held at the Ontario Agricultural College.

IN 1910. Fifteen schools qualified for grants for school gardening.

IN 1911. Thirty-three schools qualified for grants for school gardens. A Director of Elementary Agricultural Education was appointed to oversee and promote the work.

IN 1912. Regulations made the "teaching of Agriculture" the basis for special grants, in place of the school-garden merely, and over one hundred schools signified their intention of *teaching agriculture*; this means that practical work is to be carried on in gardens, and systematic instruction given in the school.

AT THE PRESENT TIME.

IN THE PUBLIC SCHOOLS. The subject of Nature Study, introduced in 1904, is becoming better understood year by year, and gradually taking its place in the schools. This subject is essentially agricultural; for its materials, it uses the natural objects or phenomena that concern the farmer—soils, weather, plants and animals. The rural school-teacher, in leading her pupils to grow plants, to care for animals, and to observe the phenomena of their environment, is teaching *Elementary Agriculture*.

Besides this general work, carried on under the name of Nature Study, several hundred schools are this year giving special attention to agriculture in school gardens, home gardens, corn clubs or poultry clubs. This phase of the work is apparently growing rapidly. Where, in 1910, 15 schools qualified for the special grants given for School Gardens, in 1911 there were 33, and this year over 100 schools have signified their intention of teaching agriculture through practical work in gardening.

There is no special text-book prescribed in Agriculture, but schools are encouraged to provide agricultural books and papers for their libraries. The best lessons will be learned by observation and experiment, but the use of books for reference is encouraged.

IN THE HIGH SCHOOLS. Perhaps it is not generally known that a considerable amount of agriculture is taught in all our 284 High and Continuation Schools. But the so-called Elementary Science taken in the two first years by all pupils has a decided agricultural bias, and includes such topics as economic insects, farm animals, plant diseases, plant propagation, and weed-seed impurities. Moreover, liberal options are allowed, so that teachers may substitute for some of the out-door work special agricultural topics, such as poultry, bee-keeping, live stock, dairying, soils, and experiments in grain-growing, fertilizers, etc.; it is possible for any High or Continuation School catering to rural communities to arrange to have this work carried out; our science teachers are adapting themselves to the work very well.

IN THE NORMAL SCHOOLS. In the Nature Study and Science work taken up with the teachers-in-training at the Normal Schools, emphasis is laid on agricultural studies suitable for rural schools. School Garden work is carried on also.

A special year's course to supplement the High School Agriculture is to be arranged for also; teachers who have taken Agriculture in the High and Normal Schools will be eligible for a certificate in Elementary Agriculture then on completing one summer session at the Agricultural College.

AT THE ONTARIO AGRICULTURAL COLLEGE. The work of teacher-training in Agriculture has been carried on at the O.A.C. since 1904. Special Courses of Instruction are given in spring and summer terms. The teachers taking the Spring Course come for ten weeks from the Normal Schools after their graduation at Easter. In the summer holidays, five weeks' courses are held for teachers engaged in teaching during the regular school term; in two summer terms, the work of the ten weeks' spring term is covered. In both cases certificates in *Elementary Agriculture and Horticulture* are awarded successful students. In the instruction given to teachers by the College, the boys and girls in the country schools are kept in view always.

More than 800 teachers have received instruction during the past nine years.

The District Agricultural Representatives are all trained at the Agricultural College also.

IN CONJUNCTION WITH THE UNIVERSITIES arrangements have been recently made for another branch of teacher-training to be carried out by the Agricultural College. This is to be in conjunction with Toronto, McMaster and Queen's Universities. By the arrangement students taking the first two years in Science at the Universities will be permitted to take their last two years in Agricultural Science at Guelph. This course will lead to the degree B.Sc. (Agr.) and qualify for specialist standing in Science. Science masters so trained will be able to introduce agriculture into our rural High Schools and to carry out experiments of local interest.

THE DOMINION GOVERNMENT. From the special appropriation made to the Province of Ontario for the promotion of agriculture at the last session of the Dominion Parliament, \$10,000 was set aside for the encouragement of the teaching of Agriculture in the Public Schools.

DISTRICT AGRICULTURAL REPRESENTATIVES. At the present time there are thirty graduates of the Agricultural College established in as many counties. Amongst the many duties they have found for themselves as agricultural propagandists, many of them have co-operated with the schools in teaching agriculture through the distribution of seed for home gardening, through the organization of corn clubs, children's fairs, etc.

In the High Schools, many of them conduct four or six weeks' short courses for farmers' sons during the winter months. At some centres, the Representatives have taken the Agriculture part of the Elementary Science course throughout the year with the first year pupils in the High Schools.

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THE SCHOOLS' DIVISION OF THE EXPERIMENTAL UNION. This branch of The Experimental Union was established in 1909 to assist the schools in carrying out practical studies in agriculture. It distributes agricultural books and bulletins, flower and vegetable seeds, grain, bulbs, shrubs, vines and forest tree seedlings. It issues instruction sheets to teachers and circulars for the pupils.

This year (1912) it has furnished material to 218 schools.

THE DIRECTOR OF ELEMENTARY AGRICULTURAL EDUCATION. The duty of this officer is to help teachers, trustees and inspectors to carry on the work in the best possible way. Under his direction schools are supplied with charts, circulars and bulletins. The teacher-training at the Agricultural College is under his supervision as well as the work of the Schools' Division of the Experimental Union.

The director of Elementary Agricultural Education has his headquarters at the Ontario Agricultural College, Guelph, Ont. From time to time excellent circulars regarding School Gardens and pupils' work in them are published by the Department of Education in co-operation with the Department of Agriculture and the Schools' Division of the Ontario Experimental Union.

THE ONTARIO AGRICULTURAL AND EXPERIMENTAL UNION.

The Experimental Union, as it is usually called, was formed in 1879 for the purpose of encouraging the scientific study of farm crops and farm operations amongst the students of the Ontario Agricultural College.

While actual membership has been restricted to students, ex-students and teachers of the College, it offers every one the opportunity of taking part in its co-operative experiments. Up to the end of 1911 over 70,000 experiments were carried on by members and associates in the Province of Ontario in different lines of work relating to Agriculture, Farm Crops, Fertilizers, Poultry, Fruits, Vegetables, and Forestry. This has helped very much in advancing the chief industry of the Province.

A *Schools' Division* of this Union was organized in 1909. It aims to adapt the work of the Union to the needs of the schools, giving to our boys and girls a training in careful work and observation, so that when they are older they may take up some of the larger experiments or solve for themselves the problems that will arise in their daily work.

"To be a good member of the Union implies:—

1. That you will learn to look forward and plan your work.
2. That you will follow instructions carefully.
3. That you will do your work well and not neglect it.
4. That you will observe closely what is happening to the plants in your garden; that every day you will learn a little more and become a little wiser and a little more patient.
5. That you will grow the very best flowers and the very best vegetables that can be grown in your garden, and the very best grain in your experimental plots, and that you will not be satisfied with anything but the best.
6. That you will be interested in your schoolmate's efforts; ready to help him and ready to acknowledge his helpfulness to you.

CIRCULARS AS TO SCHOOL GARDENS.

The circulars of the Department are appropriately illustrated. One deals with the general subject of Childrens' Gardening under such headings as:—

How to keep your Garden Journal;
Garden Tools and their Care;
What to grow and how to procure seed;
Locating and laying out a garden at home;
Preparation of the soil;
Planning the plot and planting the seed;
Protecting seedlings;
Mulching, Watering and Cultivating;
Thinning and Transplanting;
Picking flowers;
Gathering seed; growing bulbs;
Garden Rubbish, etc.

Circulars are also issued giving detailed information on the work of a school experiment, with a particular plant or crop. Under the subsidiary *Cultural Directions* useful suggestions and directions are offered in regard to:—Time of Planting; Soil and Manuring; Sowing; Cultivating; Weeding; Thinning; Harvesting; Storing; Estimate of Yield; Using; Reporting.

Other circulars contain the requisite information on the carrying on of simple experiments with cereals and are accompanied by charts which illustrate some of the experimental work at the Agricultural College. Another chart with its supplemental circular contains just the information boys and girls in rural districts should have on Alfalfa or Lucerne, with the offer of seed to sow a small plot and directions how to care for the crop.

THE CONSOLIDATION OF RURAL SCHOOLS.

A brief statement regarding this matter was presented in Chapter III, page 156. Some further particulars of interest are contained in the following extracts taken from a *Schools' and Teachers' Bulletin* issued from the Ontario Agricultural College in February 1911.

In a recent bulletin published by the United States Department of Agriculture "Consolidated Rural Schools and Organization of a County System," by Geo. W. Knorr, Esq., one learns that in 32 States, there are about 1,800 typical and graded consolidated schools, i.e. schools giving instruction in High School subjects, and 2,000 other consolidations which cover the work of the Public School courses only. The large growth of the movement in recent years points to a new order of things in the American Rural School System.

A brief survey of the status of consolidation in Canada may be of hopeful interest to those who look for great good from it as well as to those who may have considered it an impracticable and unsuccessful experiment.

THE CONSOLIDATION OF SCHOOLS IN CANADA.

In the Macdonald-Robertson scheme for the improvement of Canadian Rural Schools, Consolidated Schools, after the type of some of those organized in Ohio and Indiana, were established in each of the five eastern provinces with the exception of Quebec. After six years'

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experience with these schools it must be acknowledged, that while the principle of consolidation has been confirmed in undoubted pedagogical successes, these two educational reformers have been in advance of their times. None of these provinces was ready to incorporate into its body educational the highly organized Rural Graded School that had met with a large and favourable acceptance in another country. All the schools continue in operation, but on a reduced scale. The times were not ready for such large Rural Schools or for such extensive additions of vocational subjects.

The explanation is not far to seek. There was no keenly-felt need for reform. The condition of the schools was not felt to be so bad as to require any large change in organization. In school matters, the disposition is to conservatism. People were getting for their children as good an education as they wanted for them. They had always had the one-teacher, ungraded Rural School; it was still giving satisfactory account of itself. They were still giving the children a sufficient grounding in reading, writing and arithmetic; other things were not considered requisite. So there was not a sufficient force of enlightened public sentiment generated with the introduction of the reform to sustain and expand it. There was perhaps need for more missionary work preliminary to the establishment of the schools that were to serve as object lessons. Some of the criticism should have exhausted itself though propaganda and discussion.

The small should have preceded the large. It is now known that it would have been better to have commenced the schools on a smaller scale, taking in fewer school districts. Although it would have prevented, possibly, the most satisfactory introduction of Domestic Science and Manual Training teaching, it would have greatly lessened the costliness of the experiment and saved the hardest criticism of it—the increased expense.

ONTARIO.

The Macdonald Consolidated School, at Guelph, commenced in 1904 with five schools joined. At the present time two districts comprise the consolidation with about forty additional pupils from the surrounding districts in attendance. That the school has won the approval of parents is evidenced in the fact that at the close of the three-year trial period, when the vote to decide whether or not to continue in consolidation, was taken, only one ratepayer, with children at school, in the three retiring districts voted for withdrawal. In every case there was only a small majority against continuing even with the necessity for increased taxation before the ratepayers.

The special education which the school was established to exemplify still continues. The pupils receive special instruction in Manual Training, Domestic Science and Elementary Agriculture. With the approval of the Department of Education the continuation classes have adapted their studies this year to specially fit the needs of the home and the farm, breaking away from the more literary studies prescribed in our High School courses. The work of the school has the hearty endorsement of parents, inspectors and visitors.

PRINCE EDWARD ISLAND.

The case for and against consolidation is very concisely and admirably set forth in the Report of a Special Commission on Education which investigated the matter in 1909, as follows:—

The benefits to be derived from the principle of centralization or consolidation, experience has shown to be:—

(a) Increase in the number of pupils in a school, giving them contact with larger numbers and so widening their experience and developing them socially, which is one of the chief functions of the school;

(b) Increase in the number of pupils, rendering a close classification possible, and so forming classes the members of which can advance as a unit;

(c) Better work, inasmuch as class work is more beneficial than work with the individual pupil as in the small school;

(d) Greater progress in work, resulting from the companionship and emulation of the class members, and from the fact that the class is longer in contact with the teacher in the recitations, by reason of the smaller number of classes in the graded school;

(e) Increased percentage in average daily attendance as a result of the increase of life, interest and activity in the school;

(f) Better school buildings and school equipment, possible by reason of the greater property valuation of the district; and so, a greater public interest in the school: "Make the school worth seeing and the people will come to see it."

(g) Better inspection and supervision, as the inspector's time is not wastefully occupied in inspecting a large number of small schools. For rural schools full and frequent inspection is of paramount importance;

(h) Enlarged opportunity for doing work in new branches that are practically impossible in the small school with the poor equipment; e. g., music, drawing, manual training, household science, school-gardening.

The chief arguments against centralization are:—

(a) *Closing of Schools.* The loss to the district of the school that has been closed;

(b) *Distance.* The difficulties and exposure in the work of transportation;

(c) *Cost.* The increased cost chiefly attributable to transportation;

(d) *Depreciation of property in districts from which the schools have been removed.*

The cost of consolidation is the weighty argument against it. The expense is made up of several items: (a) School building; (b) School upkeep; (c) School equipment; (d) Transportation; (e) Teachers' salaries.

(a) As consolidation is a matter primarily concerning small schools it naturally reduces the number of school buildings and school departments. So that there should be a saving in respect to cost of buildings and of school grounds; fewer are required.

(b) The fewer departments the smaller the cost of janitor work of heating, of repairing, etc.; another economy.

(c) The school furniture, the seats and desks, maps, black-boards, etc., needed for the lesser number of school departments would allow a saving in expenditure, which money could be devoted to larger equipment at no increase of cost to the consolidated district ratepayers.

(d) Transportation in vans that would ensure the comfort of the child against wet clothing, etc. and exposure to inclemency of weather would cost more money, it is true, but would prevent the loss of much time and money arising from ill-health. But this added cost in dollars and cents is oftentimes counter-balanced by the saving in teachers' salaries, consequent on the reduction in the number of teachers required.

(e) Consolidation does not necessarily increase the amount of school grant that may be voted to the teacher.

NEW BRUNSWICK.

The first Consolidated School established in this Province was one of the Macdonald series at Kingston, in Kings County. Three others are in operation also; one at Riverside, in Albert County, another at Florenceville, in Carleton County, and one at Hampton, in Kings County. Several other districts have the matter under consideration, but have not yet taken definite steps to realize it.

In the report of the Special Agricultural Commission appointed in 1908 to enquire into the agricultural conditions of the Province and the means of improving them, the question of consolidating schools was considered. A series of questions dealing with the matter were sent to the Boards of Trustees of the 1,420 rural school districts. Replies were received from 219 of these to the following effect:—24 districts would support Consolidated Schools and 106 districts were not in favour of such schools, 22 districts expressed themselves as willing to submit to higher taxation for consolidation purposes, and 117 districts did not want higher taxation for such purposes.

So far as the schools answering represent all the districts, this shows that only about 20 per cent of the trustees of the New Brunswick schools favoured this method of improving the status of the rural schools two years ago. From the fact that no further consolidations have taken place recently, this might be accepted as the present attitude of public opinion on the question.

QUEBEC.

The question of consolidation is not an issue at all amongst the French Canadians. Their farms are deep and narrow and the families very large; as a consequence all the rural schools are attended by 30 or 40 pupils each, and are within reasonable distance from one another. It is quite different with the sparse school population in the English rural parts of the Province.

The need and advantages of consolidation are pretty generally recognized by the English population in the rural parts. The opposition to any proposal to consolidate schools generally comes from the ratepayers who live in close proximity to the schools that would disappear with consolidation; these people generally prefer an inferior school close at hand to a better one at a distance. So far, only two Protestant schools in the Province are consolidated.

The law permits School Boards to close the school in a district where there are less than ten children of school age, and, if necessary, have the children conveyed free of charge to one or more adjoining schools of the municipality. They may also annex the district temporarily or permanently to one or more other districts, and buy vehicles for transportation purposes. During 1909 the Protestant elementary schools have diminished by twenty-three in number, and presumably the pupils in the districts where the schools have been closed are attending schools in neighbouring districts. In some cases parents are allowed the remission of their taxes on condition that they convey their children to the nearest school when conveyance is necessary.

MANITOBA.

The problem of improving the Rural Schools in this Province has been boldly attacked under the leadership of the Hon. G. R. Coldwell, Minister of Education. The conditions of settlement are not the same in Manitoba as they are in Old Ontario; farms are larger and school

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population in many districts is sparse. With a progressive people who are keenly interested in securing good educational facilities there has been in consequence a decided interest taken in this phase of school organization. At the present time there are 16 Consolidated Districts in operation, with some of these covering 50 to 59 square miles of territory and having schools which have cost as much as \$16,000, this including the equipment. The majority of the consolidations have been made in conjunction with a small town or village; such are in operation at Tilston, Melita, Miniota, Virden, Darlingford, Holland, Starbuck, Teulon, Elphinstone, Dauphin, Gilbert Plains, and Sperling. At St. Patrick and Bridgenley the consolidations are strictly rural propositions.

Interest is growing in the question and a series of meetings to discuss it is being held throughout the Province this winter. The Department of Education has arranged for an officer to devote his whole time to the work from early in November until next midsummer. Meetings are held wherever a district wishes to hear the matter explained.

NOVA SCOTIA.

A large number of consolidations of a small rural type have grown up in the Province in the past few years. About 60 school sections in all have condensed into about 28 schools, with two or sometimes three united at one centre.

The Macdonald Consolidated School, established at Middleton, continues in operation with only one of the original outside sections sending in all its pupils. Advanced pupils from the other surrounding sections continue in attendance, however. This is somewhat similar to the situation in regard to the Guelph school.

Dr. MacKay, Superintendent of Schools for Nova Scotia, writes: "It looks very much at present as if it is easier to provide a teacher and a small school house than to transport the school three or four miles to a well-graded educational institution; and because it is cheaper, it is considered to be better. There is need of education on the difference and value between the cheap miscellaneous rural school and the well-graded village school. I find also that pupils become tired of starting so much earlier in the morning in order to be ready for the vans, and of the monotony of the ride in the van both to and from the school house. They appear to enjoy the freedom of travelling on the road a short distance better than an enforced long ride every day. We find it to work at present only in attaching a small settlement which can hardly support a school by itself to the nearest school centre. That means, as a rule, that our consolidations consist of the union of one or two small sections with a central one. This we find to be useful and every year a few more of such small consolidations are being organized."

SECTION 2: WINTER EVENING SCHOOLS.

WÜRTTEMBERG.

In many States of Germany, of which Württemberg may be taken as an example, instruction in Agriculture in the rural districts is universal and compulsory. Nature Study and object lessons are given in every village school, and the teaching of Agriculture begins in the Winter Evening Schools. This is a development of the original Sunday evening school, where instruction, partly general and partly agricultural, was given to young men between 14 and 18 years of age. Out of this grew the week-evening schools held in the winter months. Pupils are required to attend at least two evenings in the week during 6 months of the year. In Württemberg alone there are over 700 such schools, with a total attendance of over 16,000 pupils. Württemberg has a total population of about 2,400,000.

ENGLAND.

In England much attention has been devoted in recent years to the consideration of the best means of organizing and promoting the Rural Evening School work. Various local Education Authorities have begun to organize

and then to supervise such schools. With that, provision has been made of Vacation Courses for teachers in Nature Study, in Rural Science, and in minor rural industries. The general opinion expressed by the Board of Education is as follows:—

“The two parts of the course, which in the absence of satisfactory terminology may be described respectively as the “human” and the “technical” sides, are of equal importance. The former promotes the latter: indeed there is evidence that a purely “technical” curriculum may, for want of variety, repel the students. Both parts of the course if properly carried out will develop intelligence. From another point of view also the work of an Evening School has a two-fold aspect which requires that the course of training should be a two-stranded cord. One strand is individualistic; it helps the student to “get on” in life. The other lifts him on to a higher plane of thought and feeling as a member of the village community.

“Bearing in mind the fact that the total normal duration of the class meetings should not be less than four hours per week, it is found that in the best organised schools a suitable distribution of time is that in which one to one and a half hours are devoted to the “human” subjects and two and a half to three hours to the “technical” subjects.”

The following are sample courses:—

Course A:—	
On one evening per week	{ Reading from a good modern author; composition based on the reading; and dictation—one hour.
	{ Principles of gardening—one hour.
	{ Rural science—one hour.
On a second evening	{ Arithmetic; sketching and simple scale drawing of garden plots and the like—one hour.
Course B:—	
On one evening per week	{ English (including local) history—one hour.
	{ Arithmetic and mensuration—one hour.
On a second evening	Woodwork and drawing—two hours.

SECTION 3: VARIOUS FORMS OF INSTRUCTION IN EUROPE.

SCOTLAND.

There is a growing appreciation of the differences between the needs of communities and also the needs of individual children. These must be considered for the highest interest of the individual as well as for general welfare. The Supplementary Courses provide for differentiation in the elementary classes. They are given during the last two or three years of attendance at the public board school. The usual age at which children begin them is from 11 to 12 years. They must first have passed the required test of qualification. The

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subjects of the Supplementary Courses are arranged in four groups (1) Commercial, (2) Industrial, (3) For Rural Schools, (4) Household Management for Girls. Detailed schedules are published by the Scottish Education Department under each division to serve as models. Special grants are made by the Department to Local Authorities conducting these courses. The special subjects in the Supplementary Courses for rural schools are Nature Study, Geometry, the study of newspaper market reports and the keeping of accounts. Woodworking or Ironworking is optional. The Code of Regulations insists that the instruction in the above subjects must throughout be of a practical character.

When the instruction is of a sufficiently practical character, given through the medium of a School Garden, special grants are allowed. Many gardens were started originally for the purpose of Nature Study, and they are now turned to the service of practical training without loss to the earlier interest.

The inspectors and experts interested in the practical side of Rural Supplementary Courses generally agree as to the essentials for success. Teachers it is declared, must be specially trained for the work; counties must aid by maintaining staffs of itinerant teachers and by helping in the expense for equipments, such as garden tools, workshops, etc., and small parishes must be combined for the support of Supplementary Courses at a common centre. It is necessary also to do a great deal of missionary work to overcome the preference for theoretical studies and the opposition of parish school boards to increased expenditures.

IRELAND.

The Winter Agricultural Courses in Ireland belong more to the class of work done by the Travelling Instructors than to that of a definite, located and organized school. They are usually held during two half days a week for a period of four months during the winter. The Instructor is thus able to take charge of three classes and carry on educational work at three different places every week. (For further information see Report on inquiry in Ireland in Part III.)

DENMARK.

The Agricultural Schools of Denmark are carried on during the winter and generally provide only one course of six months' duration. They are attended by students who have already received a good elementary education, have worked for several years after leaving school, and in many cases have attended one session of a People's High School. In Denmark as in France, and also in many cases in Germany, the Agricultural School is the property of the Principal or Director and the farm attached to it is farmed by him for his own profit in so far as he can make it pay. There are advantages in that case from the fact that the various farm processes, as they are observed and taken part in by the students, are all upon a scale and of a character similar to what they would carry out on their own farms at home. The disadvantages are that the students may be kept too much at work for profit without due regard for their instruction and training. This, however, does not apply to the Agricultural Schools of Denmark. (For full information see Report on inquiry in Denmark in Part III.)

FRANCE.

In France instruction in agricultural subjects is given in the Superior Primary Schools, at the Farm Schools, at 38 Practical Schools of Agriculture, and for those who are able to proceed further at the 3 National Schools of Agriculture. Particulars regarding these may be found in the report on Agricultural Education in France in Part III.

GERMANY.

Since it is not considered that details of the organization or of the courses in Agricultural Schools would be useful in Canada, only an outline is presented. The features of importance are the general adhesion of the rural population to the belief that education is advantageous to agriculture and the working out of their salvation by making that belief vital in the affairs of the locality.

The farmers live in villages and not on isolated farm steadings as in Canada, and almost every village has its Agricultural Club or Association in touch with a Provincial Chamber of Agriculture.

There is a lesson in those matters for Canada. The policy of village settlements rather than isolated homesteads is well worth considering, and recommending for the unsettled districts; and even where surveys have been made and settlement effected the question need not be looked upon as finally settled. Contented women, good chances for the education of the children, and a reasonably richly developed social life are in the long run of immensely more consequence than conveniences for growing crops. The place of the latter is to minister to the former. What shall it profit a country to be called, or to be, the Granary of the Empire if it loses the soul of happy rural life?

The Lower Winter Agricultural Schools of Germany were founded to enable the young sons of small farmers or peasants to acquire a theoretical training for their work without having to give it up during the summer months. Instruction is given during the winter only, and the whole time of the student is devoted to it during that period. The schools are quite inexpensive and have been successful in improving the agricultural conditions of the locality. They increased rapidly during the past fifteen years, there being now over 200 of them in Prussia.

In Germany some of the Realschulen (that is a Secondary School paying attention chiefly to science and mathematics) have an agricultural top. These Secondary Schools with an agricultural department from 13 or 14 to 16 or 17 years of age are quite different from the Agricultural Schools of Denmark with only a six months course.

There are in Prussia also some 20 Agricultural Middle Schools. These are attended by about 3,000 pupils and are supported in part by the State and in part by the Province, District, Communal Funds, Societies and Endowments. In other States of Germany there are some 130 Agricultural Schools of this class. They have a general Agricultural curriculum. Besides these there

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are large numbers of special schools such as Dairy Schools, Schools for Bee-keeping, Poultry-keeping, Horticulture, etc.

In the State of Württemberg, for example, there are four Farm Schools, one in each of the four departments of the Kingdom, which are different from these Agricultural Middle Schools. The course is for three years. Students are admitted from 16 to 20 years of age. They live at the Schools, which are situated on Crown land. They give their labor on the model farm which is attached to the School in exchange for instruction and board. In summer the students work about ten hours per day and receive theoretical instruction during 12 hours per week. In winter they work about 8 hours per day and receive theoretical instruction during 16 hours per week. (For further information see Report on inquiry in Germany in Part III.

SECTION 4: COUNTY OR DISTRICT AGRICULTURAL AND HOUSEKEEPING SCHOOLS OF THE UNITED STATES.

The Commission is of opinion that County or District Agricultural Schools, with courses covering two winters, following closely the lines of the Wisconsin County Schools of Agriculture and Domestic Economy and the Danish Agricultural Schools, would be of the greatest service to Canada.

These schools for Canada would differ from Rural High Schools, inasmuch as they would be residential Schools and would provide opportunity for education for those, chiefly young men and women from 17 years of age upward, who had already been engaged in practical work for several years after leaving the Elementary School.

SMITH'S AGRICULTURAL SCHOOL AND NORTHAMPTON SCHOOL OF TECHNOLOGY.

This School may be cited as the place where the most progress has been made in carrying out the Co-ordinated Courses of Home and School work. The Commission was most favorably impressed by the character of the institution itself and the evident effectiveness of the courses for the education of young persons for agriculture and industry in the locality.

THE INSTITUTION.

Smith's Agricultural School and Northampton School of Technology, located at Northampton, Mass., is an independent agricultural and industrial school, opened in 1908, supported in part by the State and in part by the income of funds bequeathed to Northampton by Oliver Smith. This fund now amounts to about \$310,660 and yields annually approximately \$12,000. The total annual maintenance budget of the school is about \$20,000. The institution is controlled

by a local board of trustees elected by the voters of the city of Northampton. It has a main building costing \$60,000, and farm buildings, equipment, and land valued at \$25,000. The farm contains 100 acres.

A striking feature of the school plant is the main building, which consists in fact of four separate buildings arranged in such a way as to inclose completely a rectangle one-quarter of an acre in extent and about twice as long as wide. At the front, on one of the long sides of the rectangle, stands the office building, containing several recitation rooms; at the ends are the science building and the trades building, respectively; and in the rear is an auditorium with raised seats facing the inclosure. The inclosed rectangle is covered with a trestle roof, the four buildings with their connecting walls forming the sides of this inclosed and covered arena, which is well lighted from above. The partition between the arena and the auditorium is movable, and when pushed aside allows persons seated in the auditorium a view of the entire floor space, nearly one-fourth of an acre in extent. The buildings are of brick and limestone. The floor of the arena is cement.

Students 14 years of age or over are admitted to the school without further entrance requirements. They are allowed to remain only so long as they continue to show themselves able to do the required work. Three four-year courses of study are given, each strictly vocational in its purpose, designed respectively to prepare for farming, for mechanical work, and for housekeeping and home making.

On the occasion of the Commission's visit, the School was attended by about 120 students, 40 in the Industrial Department, 22 in the Agricultural Department and 60 in the Housekeeping and Homemaking Department.

The following information was gained, partly from observation and partly from "Conversations" with Mr. Rufus W. Stimson, Agent for Agricultural Education of the Massachusetts State Board of Education, and formerly Director of Smith's Agricultural School.

MECHANICAL DEPARTMENT.

To ensure that class-room instruction shall directly relate to shop work, first and second year boys are together in the shop under one man, who the next week teaches them shop mathematics. He is a skilled pattern-maker, hired out of the trade, and not a school teacher. He is looking at this matter from a practical point of view to get at the minimum of mathematics for classes in his department. The same thing is true of the instructor for the upper two years. He deals with the mathematics and shop science of those boys.

To widen the students' understanding of the field of industry as a whole, the school subscribes for about 25 papers and magazines, and the instructors mark articles which they assign to boys in the senior and the junior years to read, digest and make reports. When the written reports are up to a certain grade in spelling, penmanship, grammar, etc., the teacher hands them to the head of the mechanical department, and the boys get mechanical credit as well as English credit for them. That is a strong incentive to good English work.

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AGRICULTURAL DEPARTMENT.

Emphasis is laid on productive work in the Agricultural Department also—it being directed to result in a crop or something else. With the opening term in the fall of 1911 the school looked forward to the crop of 1912, not only on the school farm, but on 22 farms represented by the boys who were taking the course. The method of training is this:—one agricultural instructor takes his vacation in winter, being with the boys at the school in the fall and spring terms. Throughout the summer he visits their farms, studying their actual home conditions and helping them to carry out on their own land Farming-Projects which they planned with him. Some of the boys who live in the Eastern part of the State get work on the school premises until the middle of June, and are then allowed to substitute other work till the middle of September.

The school instructor visits the farms, knows what each pupil is doing, and gives credit for what is done. The main consideration is given to boys who live on their own farms within striking distance of the school, and who intend to be farmers.

CLOSE TO PRACTICAL FARMING.

The school does not own a herd of cows; it sold one it did own, because it wanted to make a thorough-going test of dealing with strictly economic propositions in the school work. It is hard to convince anybody that a school proposition is or can be made a strictly economic proposition. Booker Washington's famous Tuskegee Institute in Alabama is a proposition closely approximating to the strictly economic. The vocational form of training is followed, and Washington himself says that he is always going up to the point of breaking even or turning a profit—never getting above it. It is his business, as soon as the school has developed a boy so that he can profitably employ his own labour, to send him out where he can employ himself for his own or somebody else's benefit. In vocational training you are always just below the line of any economic return for the labour of the pupils.

THE FOLLOW-UP SYSTEM.

What Northampton is trying to do—without any necessity for doing it, because they had the land and equipment, and could have done the other thing—is to make a thorough-going experiment in the utilization of home farms for practical work, and of the school premises for theoretical or scientific work, with the institution on the "follow-up" system. In Mr. Stimson's opinion the difficulty with such first-rate schools as the Minnesota Agricultural School, and the Alfred School in New York more recently created, is that the boys are taken away from the home farm for six months and pumped full of theory. So far as they have been given practical training it has been under artificial conditions and not under out-door conditions such as obtain on their home farms. Then the boys are cut loose and sent back to the farm to work on without any guidance from the school.

THEORY AND PRACTICE.

Over and over again in Massachusetts and Connecticut complaints have been made that graduates of the Agricultural College came back home and amounted to nothing, "therefore there was no use making any State appropriation to the Agricultural College." The officers have to combat that every year in the Legislatures in asking for their appropriation. The deficiency is not with the boy, but with the system; the boy has been asked to do the impossible. Practically every boy learns more easily by seeing and hearing than by reading, and certainly succeeds better when he is able to take a theory and test it out immediately, rather than defer the application until some future date.

With a good deal of school work there is so much theory and so little opportunity for practice that it gets to be a training under somewhat artificial conditions so far as it is goes at all—chiefly observation of what some body else is doing, and a study of theory. That is far better than nothing, for you are going to establish ideals there, and you are going to give a certain fund of information, and the boy of abstract mind will grasp the principles and hold them before his mental vision with just as much tenacity as though he had fed the ration. That type of boy will profit to a considerable extent by that kind of training; but the type of boy who, more than likely, is going to be found on the farm in future, is not the type that can turn that kind of training to the best possible account.

WORKING IT OUT IN POTATOES.

The following two examples are given substantially in Mr. Stimson's words. The thing is to commit the school to considering the farms of the boys as going enterprises, and the things on those farms that the boys could do to improve their knowledge and farm practice. The school could not interfere to any considerable extent with the farm. That would have to be "a boy matter"; the Smith School authorities have recognized that frankly. Take an example from a crop of potatoes of ten acres. The father—a man of moderate circumstances—depends on that crop; he needs the boy's help in growing that crop. How can the school fit in its plan under such circumstances? It can agree with the father that the boy shall have one quarter, one-half or three-quarters of an acre, or say a tenth of the whole crop to grow, with the privilege, right and every facility for doing on that acre what the school believes to be the best practice. His father may do as he likes with the rest.

The father would carry out his plan on the nine acres, and the boy would manage his acre as the instructor told him was the best. He would cultivate it either flat or by hill cultivation, depending on the nature of the soil and what he believed was the best method. He would spray when he thought best, and so on. The boy would have a stake in the crop. He might "get by" as the saying is, on 20 hills, and get a big rate per acre of return, through some quality of the soil or some chance circumstance; but it is to "get by" with the

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acre or ten acres that the farmer is concerned. It is the really productive work on an economic scale that gives the boy a stake of considerable magnitude and the incentive to this work.

WORKING IT OUT WITH COWS.

Last winter the boys were studying cows. They had studied breeds and type and feeds, and had found there was a balanced ration, a certain standard; then they began to study their own problems. Each boy brought in the problem based on what his farm produced, and each one figured out what combination of those feeds would give him an approximation to the balanced standard. In all cases it was found among those boys that the ration that was being fed was an unbalanced ration. The problem was to get the boys to make up their mind what feed they ought to buy considering the market, and the standard, in order to supplement the home-grown feeds and give their cows a balanced ration. After they got that all figured out, the next thing was to decide that they would feed the balanced ration to one cow. The instructors had led up to this by another thing; when studying types of cows the boys had studied economy of production—whether a general type of cow would give a better yield than the dairy type. That led to weighing milk and testing for butter fat; they had had weighings for the month before they got to the point where they asked the boys to feed. One case in particular was that of Bartlett, whose father has pure-bred Jerseys; the boy was doing the feeding. The school supervisor found that Bartlett came to the school not because he wanted to come himself, but because his father wanted him to come, having said: "If you are going to be a farmer you must go to that school and get all you can to help yourself." Bartlett was not one of the shining lights in the school, and he knew it, so he said to himself: "As soon as I am 14 I am going to quit school and work; I can almost do a man's work now." Bartlett began to stand straighter when the boys in testing their cows found that Bartlett had the cow that gave the highest butter-fat test of the whole school. When the question came up as to the boys feeding one cow at home, Bartlett said he didn't think his father would want to bother. The teacher in charge thought that if any man would bother, it would be Bartlett's father, and he said to the boy: "Look here, Bartlett, what would your father say if he saw you go to the grain bin with a scoop-shovel, fill it, throw it out in the barn-yard and repeat that operation at night?" The boy said he guessed his father would think him crazy. The teacher said, "Well, according to your figures that is exactly what you are doing, isn't it? You are feeding more grain than you can expect to get a reasonable return for. You had better ask your father if he will let you feed." All the other boys had the privilege of feeding one cow. Bartlett came in a few days after and said, "Father says I'd better not bother with one cow, I'd better feed them all, if he was throwing grain in the barn-yard." Within a few days all the cows except two had shown a very considerable increase in milk on a ration that was costing less than before. He was getting the advantage

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at both ends—less cost and more product. Those cows that did not show an increase were too far in the period of lactation to be influenced by any system of feeding.

AT RURAL HIGH SCHOOLS.

Mr. Stimson intimated that it is proposed to put the plan outlined into operation in connection with Rural High Schools. It does not call for expensive equipment at the school, the vital things being the boy, the instructor, and the home farm. The State is prepared to help to pay half the running expenses of schools like Smith's School. It will also pay two-thirds of the salary of an agricultural instructor who will give all his time to agriculture, and do this type of co-operative work on the home farm in the vicinity of any school in the State up to the limit of \$10,000 for the State at the present time.

Each year of instruction would be complete in itself, so that if a boy dropped out he would have something he could use. One year would lead to another year; and it is proposed to bracket this training in groups of two years. To reinforce the influence on the boy there is a daily time-sheet marked off from four o'clock in the morning till nine at night. These are rendered in duplicate. The boy keeps one for himself and furnishes the other to the school with an "O.K." on his part. Those sheets go to the office of the State with the "O.K." of the inspector—all of which tends to emphasize the attention to to home work of a productive nature.

The following is a sample of these daily time-sheets :—

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AGRICULTURAL STUDENT'S DAILY TIME SHEET.

SMITH'S AGRICULTURAL SCHOOL
IN CO-OPERATION WITHC. A. SMITH, Northampton, Mass.
Name of Parent, Proprietor or Superintendent.Day of Week, *Tuesday*,

Date

April, 28,

1911.

KIND OF WORK Include implements used, number of loads, etc.	FIELD	MAN HOURS	HORSE	
			No. ,	HOURS
4.30—				
5.00—				
5.30— Care of Horses. See Note 8		$\frac{1}{2}$		
6.00— Feeding cows and milking. See Notes		1		
6.30— 3 c and 8 Home project		$\frac{1}{4}$		
7.00— Breakfast				
7.30—				
8.00—				See
8.30—				Note 3 (b)
9.00— Plowing for corn, 7 in. deep, 16 in. riding	A	3	3	9
9.30— plow. See Note 4				
10.00— Home Project				
10.30—				
11.00— Disking for corn (John Deere 12 disk)	B	$1\frac{1}{4}$	4	7
11.30— See Note 4				
12.00—				
12.30— Dinner				
1.00—				
1.30— Hauling manure—spreader, 3 loads	A	2		
2.00— Ed. Moore helping. See Note 5				
2.30— Home Project				
3.00—				
3.30— Rain—Nothing done. See Note 6				
4.00—				
4.30— Fixing fence		1		
5.00—				
5.30— Feeding cows and milking		$\frac{3}{4}$		
6.00— Home Project		$\frac{1}{4}$		
6.30—				
7.00— Care of horses		$\frac{1}{2}$		
7.30—				
8.00— Supper				
STUDENT	Stanley Smith		TOTAL HOURS	10 $\frac{1}{2}$
REMARKS			16	

REPORT O. K.
C. A. S., P., P., or Supt.
F. B., Instructor.

HOUSEKEEPING AND HOMEMAKING DEPARTMENT.

The girls who attend the School live at home, and roughly one half of their time is spent on productive work. In the cookery room, for example they fill orders for canned tomatoes and other things of that kind; in the dressmaking room, they make things for themselves. At "Commencement" girls were wearing gowns such as they never wore before and such as they could not have worn, considering their financial circumstance in life, if they have been obliged to pay for anything more than the raw material. The nice artistic work that had gone into their dresses had been their contribution, and they were as finely gowned as any girls in town, so far as workmanship and materials were concerned. The girls are very careful of their material because they have bought it. There is very little sample work done. If a teacher finds that a girl cannot make a buttonhole she gives her some exercise work on buttonholes of the size that are going to be used in a dress, and the girl is merely held away from buttonhole work on that dress until she cannot spoil the garment.

THE ACADEMIC IS NOT NEGLECTED.

The teachers of English teach English to the girls and the Agricultural as well as the Mechanical students, but in separate classes. For example, Shakespeare is studied some of the time. The boys read "Julius Caesar" last year, and Mr. Allen of the State Board of Education happened to be present when the exercise was going on. He said, "The idea of Shakespeare for boys of this type!" He went into the class, where there was a very interesting discussion; the boys liked to reel off those big speeches of Julius Caesar and had prepared themselves for it. Different parts had been assigned. It was a very interesting exercise, and the boys asked the privilege of staying half an hour over at the end of the day to finish the Act that they were at. That was fairly conclusive proof that because the boys were interested in shop English, they need not be debarred from being interested in cultural English as such. But the foundation work, the essential work of the course, is the English related to the shop work.

COUNTY SCHOOL IN WISCONSIN.

The Dunn County School of Agriculture and Domestic Economy (Wisconsin) was the first school of this type started in the United States. From the statement of its courses there does not appear to be much difference between such a school and a Rural High School. However, a visit to Menomonie, Wis, brings out the fact that the practical and vocational side of the instruction is dominant. The school meets the needs of pupils in rural districts who have passed the usual rural High School age of entrance, and may have forgotten some of the academic studies or subjects of the conventional High School course, and yet who are not able or disposed to seek a course at the State Agricultural College.

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THE COURSES OF STUDY.

The Dunn County School has evidently realised its object, which was to enable boys and girls to acquire more intimate knowledge of the things they are to be concerned with in after life, and more ability to manage them successfully. For the young men, the main interests taken up at the school are Stock-raising, Dairying, Market Gardening, with attention to separate subjects such as soils, crops, weeds, cultivation, etc. Attention is also given to the scientific principles which underlie the processes and methods of farming. Instruction and practice are given in farm carpentry, simple blacksmithing, mending and repairing of machinery, and the operation of farm engines.

For the girls, the interests chiefly centre around Cooking, Sewing, Millinery and Home Management, with instruction in the principles of economics, of foods, hygiene, etc.

For both boys and girls courses include English, Mathematics, Elementary Science, Physical Geography and Physiology.

HISTORICAL STATEMENT.

The following information is from the official publications of the School which is under the direction of Dr. Harvey formerly State Superintendent of Education for Wisconsin.

In 1899 the Wisconsin Legislature appointed a commissioner to investigate and report upon the methods of procedure in this and other States and countries in giving instruction in Manual Training and in the theory and art of agriculture in the public schools.

Among the recommendations in that report was one for the enactment of a law authorizing counties to establish secondary schools of agriculture and domestic economy. The Legislature in 1901 enacted a law providing for such schools and proffering State aid to the first two schools thus organized. In 1902, two schools of this class were established; one in Menomonie, Dunn county, and the other in Wausau, Marathon county. There was a good attendance at the opening of each school which has steadily increased each year.

The Legislature of 1903 increased the number of schools entitled to State aid to four, increased the amount of aid in each case, and authorized two or more counties to unite in establishing and maintaining a school.

POSITION OF SCHOOL IN STATE SYSTEM.

The chief purpose of the County Agricultural Schools, as now established in Wisconsin, is to popularize agricultural education more than can be done by a State Agricultural College. The schools are below the Agricultural College in that they are not so advanced, especially in their academic subjects. Students are admitted directly from the rural schools. Most of them would never go to an agricultural school, if this new class of schools were not brought close to

them. Some students board at home and help with home chores, others visit home at the end of each week and are dominated by the home spirit throughout their school life. Certainly these County Schools in Wisconsin reach a class of pupils that would not feel that they could spare the money necessary to attend the State Agricultural College. And yet there are students who, after getting the work of the County School, will feel like continuing their education and will attend the State College of Agriculture. Several graduates are already planning such a course.

GENERAL EQUIPMENT.

The Dunn County School of Agriculture has three buildings located on a half block in the centre of Menomonie, the county seat. Here there is room for poultry runs and a small garden for girls' practice. Philanthropic citizens and the city gave these grounds to the school. The school farm consists of six acres located on the county fair grounds nearly one mile from the school. Here the boys of the school have practice in farm, orchard and nursery work. The area may be increased from time to time.

COST OF RUNNING THE SCHOOL.

The State law authorizes any county (not to exceed four) to build and equip a School of Agriculture and pay the running expense for one year. After that the State will pay two-thirds of the annual cost of maintaining the school—not to exceed \$4,000 for each school. Experience shows that the annual running expense is about \$6,000, two-thirds of which is paid by the State and only one-third by the County.

The assessed value of taxable property in Dunn county is about \$10,500,000. Any person with an assessment of \$100 will pay less than two cents to support the school. Property assessed at \$1,000 requires a payment of less than 20 cents a year to run this school. Thus it is seen that the annual cost is almost nothing to the individual tax-payer in the county.

When such are the facts, all who may have had some fears regarding the matter of annual cost may feel at ease: for surely a county in an agricultural region can easily support its own "farmers' school."

CORRELATED WORK FOR FARMERS AND TEACHERS.

Much agricultural information is disseminated from the Agricultural School to the farmers of the county. Directions for planting, suggestions as to varieties, combatting noxious weeds, helping establish co-operative creameries, planning barns, silos, school-houses, dwellings, devising ventilators, selecting stock, and many other subjects are taken up by the instructors with individual farmers. The school has done a great deal of milk and cream testing for farmers for the purpose of helping to improve dairy herds. On the school farm such

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new crops are tried as should be used by those living in the section. Many hundreds of bulletins on special farm topics have been placed in the hands of farmers desiring information on these subjects.

A novel feature of the school's work in Dunn county is the introduction, through the rural teachers, of Elementary Agriculture and Manual Training into District Schools of the county. By an interchange of classes with the County Teachers' Training School the Agricultural School teaches the rural teachers to handle these subjects in their school in a very creditable manner.

CHARACTER OF THE INSTRUCTION.

In all the instruction in the Dunn County School of Agriculture the useful side of the knowledge and training given to the students is emphasized. This is the principle on which the school is founded. The extended knowledge which the farmer must have should be made as practical as possible. At every point the school is made to co-operate with the farm, the shop, the dairy, and the home. The Manual Training courses are made far more practical and useful than such courses usually are. Nearly all of the time of the classes has been engaged in making articles of use on the farm, in the home, in the school and shop. The same feature of useful training has prevailed in domestic economy, plant life, farm accounts, study of soils, poultry, and in fact all subjects.

The regular course of study covers two years of 8 months each, beginning in October and closing in May. In addition there are Winter Term Short Courses.

WINTER TERM SHORT COURSE.

There are large numbers of young people who, from lack of means or time, are unable to take an extended course of study, but whose usefulness in the world would be much increased by a little special training. Their earning capacity in the household or on the farm is far from what it might be. The Winter Short Course at the Agricultural School is for the benefit of such persons. The Short Course is primarily intended for persons of advanced age. Younger pupils are advised to take the regular course. The complete Short Course covers two winter terms, twelve weeks each, beginning in January and ending in March.

The following are the subjects:—

For men, first winter: Science of Agriculture, Farm Accounts and Commerce, Dairying, Farm Carpentry, English.

For men, second winter: Feeding and Care of Stock, Soils and Fertilizers, Farm Blacksmithing, Rural Architecture, English.

For women, first winter: Home Economy, Cooking, Sewing, Laundering, English.

For women, second winter: Cooking, Sewing, Millinery, Personal and Domestic Hygiene, English.

COUNTY SCHOOL OF AGRICULTURE, MANUAL TRAINING AND DOMESTIC ECONOMY IN MICHIGAN.

This school is of a similar character to the one at Menomonie, Wis. Details of its courses are given as being very suggestive and instructive for communities in Canada.

The school is located on the Agricultural School Farm, comprising 107 acres of land in the western part of the city of Menominee, the leading city of the upper peninsula of Michigan. It can be reached by a street car from any part of Menominee (Michigan), and Marinette (Wisconsin). The two cities combined have a population of 31,000 inhabitants.

The school was established in 1907 by the State Legislature which appropriates \$4,000 annually. It is controlled by a County School Board of five members, four of whom are appointed by the Board of Supervisors, the County Commissioner of Schools being ex-officio member and secretary, with the same powers as the other members. The aim of the school is to furnish a thoroughly practical and scientific course in work pertaining to farms and farm homes to young men and women unable to leave home and attend college for a number of years, either because of limited means or college entrance qualification. In practical work on the school farm, the aim is to assist farmers to work out their many problems; to furnish up-to-date ideas and ideals so that the farm work may be done more advantageously and profitably; to determine the best crops for local conditions of soil, moisture and climate and by systematic selection and plant breeding to evolve varieties of grain, grasses, root crops and corn adapted to local needs and conditions.

COURSES OFFERED.

The Regular Course covers a period of two years of thirty-six weeks each, beginning September and ending June.

The word semester here used represents a period of one half of the school year's work or eighteen weeks. The numerals inclosed in parentheses indicate the number of times a study is given during the week.

FIRST YEAR CLASS

First Semester.

<i>For Men.</i>	<i>For Men and Women.</i>	<i>For Women.</i>
Stock Judging (2)	Plant Life (3)	Sewing (5)
Field Crops (3)	Arithmetic (5)	Cooking (4)
Practice in Field Work (1)	Grammar (3)	Food Study (1)
Carpentry (5)	Spelling (4)	
Drawing (farm buildings) (3)		

Second Semester.

<i>For Men.</i>	<i>For Men and Women.</i>	<i>For Women.</i>
Soils and Fertilizers (3)	Flower, Fruit and Vegetable Gardening (4)	Cooking (4)
Insects and Weeds (2)	Poultry (1)	Sewing (5)
Carpentry (5)	Business Correspondence (3)	Household (1)
Study of Breeds (2)	Arithmetic (5)	Hygiene (1)
Mechanical Drawing (3)	Composition (3)	
Blacksmithing (3)	Spelling (4)	

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SECOND YEAR CLASS.

First Semester.

<i>For Men.</i>	<i>For Men and Women.</i>	<i>For Women.</i>
Agricultural Chemistry (3)	Dairying (5)	Laundry (2)
Drainage (2)	Farm Accounts (4)	Dietaries (2)
Stock Judging Adv. (2)	U.S. History (3)	Sewing (4)
Field Crops Adv. (3)	Emergencies (1)	Home Decoration (1)
Practical Mechanics (2)		
Carpentry Adv. (3)		
Blacksmithing (3)		

Second Semester

<i>For Men.</i>	<i>For Men and Women.</i>	<i>For Women.</i>
Farm Management (2)	Landscape Gardening (1)	Domestic Chemistry (3)
Judging and Grading Farm Crops (3)	Civics (3)	Home Nursing (1)
Feeds and Feeding (3)	Commercial Geography (3)	Serving (1)
Practice in Field Work (1)	Thesis (1)	Sewing (4)
Farm Machinery (2)		Millinery (1)
Cabinet Making (5)		
Architectural Drawing (2)		

Writing and music are given one period a week each for the entire school year to all the students. Debating and parliamentary practice is given two periods, every second Friday during the year.

Students who satisfactorily complete the work of the regular two year course, of nine months each, are given a Diploma upon graduation. Those graduating from the Student's Short Course are granted a certificate.

THE MATERIAL EQUIPMENT.

The six school buildings include a barn 36 x 70, implement shed 18 x 56, superintendent's and janitor's residences, poultry house and main building 45 x 90, three stories high. The basement or the first floor is devoted to carpentry, blacksmithing, dairying and three store rooms. The second floor to domestic science, chemical laboratory, museum, mechanical drawing room and superintendent's office. The third floor is given up to a large assembly room, library, field crops, two class recitation rooms and cloak rooms. The student's house contains dining room, laundries, and sixteen living rooms for students, so divided that one half is occupied by young men and the other half by young women. The rooms are furnished with bedstead, mattress, two pillows, bureau, table, rocker and chair. The rooms are heated by steam and lighted by gas and electricity. The "Home" will accommodate thirty-two students. A regularly appointed matron is in charge of the Home who devotes her time to the comfort and welfare of the resident students.

Board and room at the Student Home are furnished at \$2.60 a week to resident students. A considerable portion of the crops grown at the School Farm is made use of in the kitchen, and in that way the cost of living to students is materially reduced. Each student intending to room in the "Home" must provide himself or herself with four bed sheets, two pillow cases, a blanket, a comforter and two towels. All of these can be purchased for about \$6.

Neighboring farms are utilized for instruction and illustration in live stock, silos, special crops, fruit, orchards, farm buildings and machinery, etc. Students pruned over 700 fruit trees in the county last year. The school has now been in operation for four years and is proving its usefulness to the farmers and others in this section of the State in many ways. The enrolment of students the past year has by far exceeded the expectation of the most hopeful. Most of the students come from the farms, some of these using bicycles and teams in going to and coming from the school to their homes every morning and every evening, a distance ranging from three to eighteen miles.

QUALIFICATIONS FOR ADMISSION.

Students are admitted at 14 if unusually proficient in common school branches. Students holding eighth grade diplomas or certificates issued by the county commissioners are admitted without further examination. Students who have completed eighth grade work in the rural school, and those who have equivalent training in other schools are admitted upon presenting proper records of their work. Applicants for admission whose home schools cannot afford complete instruction in the common branches are admitted provisionally. Applicants having only a limited amount of preparation, and who wish to take up the regular work of the school with a view of graduation, must pass an entrance examination in arithmetic, grammar, spelling and reading. Students from the city or graded schools are not admitted until their former records have been passed upon by the superintendent.

No entrance examination or special qualifications are required and no age limit is prescribed for entrance to the Short Course. The school is free to all resident students of the State of Michigan. Students from other States are charged \$1 per month.

SUBJECTS OF THE COURSES.

Agricultural Chemistry:—

In agricultural chemistry the object sought is to give the student a reasonable amount of training in elementary science, in the more common chemical elements and their chief compounds. These lessons lead up to the principles underlying the practical work in the everyday farm life. Laboratory work leads to observation of the more important phenomena in the field of chemistry. The work for boys is along practical lines in dairying, soils and fertilizers, insecticides and feed stuffs. That for girls includes analysis of foods, value of foods, laws governing their correct use, their digestibility, composition of plant and animal bodies.

Animal Husbandry:—

In animal husbandry the course is fitted to the needs of the up-to-date farmer and to those who intend to become managers of large special and livestock farms.

Arithmetic:—

The instruction deals with problems which give the student thorough drill in practical labour-saving methods, such as will be of use to him on the farm. Drill in measurements of material extension, capacity, percentage and the application of its principles to all kinds of farm problems.

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Blacksmithing:—

The object of the work is to enable students to repair and place in position the broken or otherwise injured parts of machinery commonly found about the farm. The work covers methods of firing, the use of different grades of coal; drawing out, shaping and welding iron; brazing rings with copper; chisels; fitting water and gas pipe; chiselling and filing; thread cutting, tempering and other useful work usually found about the farm.

Business Correspondence:—

A short and useful course is given in the principles of letter writing, billing, invoicing, making out receipts, contracts, deeds, mortgaging, farm accounts showing profit and loss in any branch, settling estates, notes, postal regulations, laws governing the foregoing, and other information such as the farmer needs to have in executing his work on the farm lawfully and successfully.

Carpentry:—

The course in carpentry is designed to give the student a practical training in high class work, and also to establish confidence in himself in the use of tools. The work covers sharpening and handling of tools, laying out work, making trestles, tool chests, tool boxes, farm gates, tables, rafter cutting, greenhouse and hot-house construction, barn and house models, in short, everything pertaining to a neat high grade class of work for the farm and the farm-house.

Civics:—

Civics is taught so as to give the student a good understanding of the necessity, origin and nature of the different forms of governments. Beginning with the organisation and management of local institutions, such as school districts, townships, county, village city and state and carrying up this relation to the general government. This course aids the understanding of the principles of law, and cultivates patriotism and an intelligent appreciation of our free institutions. It relates itself to making the student a useful, honored and law-abiding citizen of the community in which he lives.

Cooking:—

The purpose of the course in cooking is to give the young woman a sufficient amount of practice in the kitchen to illustrate the principles brought out, and to train her to make discreet and intelligent use of the food materials at her command at her home. Cooking extends through a period of two years, and in the first year covers the study of fire, water and air; cooking starchy foods, cooking with fats, cooking meats, cooking food mixtures, such as biscuits, muffins, waffles, cakes and cookies; making salads, bread, candy, sugar frosting, ice cream, cocoa, coffee and tea. The second year cooking includes work in the study of bacteria, canning pickles, fruit and vegetables, jellies, and preserves, invalid cookery and the study of food rations, bills of fare, diets in the best and most approved way.

Dairying:—

The purpose of the course in dairying is to give the student useful training in the handling of dairy herds and the farm dairy. The work in the laboratory covers a study of milk, the different methods employed in testing for butterfat, in whole milk, skim milk, cream and its acidity, curd test, fermentation test, the bacteria test, the Irish moisture butter test, and other tests for preservatives. The use of lactometers and thermometers. The handling of different kinds of hand separators, the principles involved in ripening and churning of cream under farm conditions. Practice is also given in detection of milk adulteration, milk inspection and testing cattle for tuberculosis.

Drawing:—

The object of the drawing course is to give the student a better understanding of the work pertaining to the most modern rural architecture; how to do the work more systematically and economically than he has been ordinarily doing. It treats of straight line, angle, circle, shading work, lettering, stencil, flat and relief designing, outdoor sketching, perspective and model work. It also includes plans, farm homes, barns, stables, silos, wood, stone and cement structure.

Embroidery:—

The embroidery work is intended to show girls the use of the most modern methods in knitting, crocheting, darning lace, making eyelets, French shadow work, etc.

English:—

English composition includes oral and written drill in the correct use of different forms of speech in everyday life, including punctuation. Courses are also given in Grammar, Writing and Spelling.

Live Stock:—

The live-stock course covers feeding, breeding and caring for stock; study of animal organs as related to laws of nutrition and breeding; composition and nutritive value of feeding stuffs, field crops, working out rations.

Field Crops:—

The course in Field Crops gives a thorough understanding of latest methods in handling them; teaches how to adapt and breed grains and forage plants for various soils under different conditions of fertility, moisture and climate; how to select seed oats, barley, rye, corn, sugar beets, etc, millet, flax, clover, timothy and other commonly grown small grains and grasses. Particular attention is given to the different methods of cultivation of grain, root crops and corn; storing, grading and judging of grains and grasses. Weeds and insects are also studied; the cause and remedies of the more common plant diseases, as the mildew, smut, rust, etc., and their relation to crops they attack, are taught. Practical applications of sprays are made. Abundant practice is given in seed testing, for vitality and power of germination.

Farm Machinery:—

The farm machinery course acquaints the student with the different parts of machinery, their construction and the principles involved when the machine is in working order. The student makes special adjustments with reference to durability of parts. Gasolene engines, seed drills, harrows, ploughs, mowers, cream separators and self-binders are studied.

Food Adulteration:—

The object in giving the work in food adulteration is to acquaint the student with the most common adulterations and the foods in which they are apt to occur. The different tests for their detection are taught and discussions of pure food laws encouraged.

Farm Management:—

The farm management course is chiefly designed to bring before the student, in an economic way, all that he has learned in the school as regards facts, principles, sciences and practices in the field of agriculture. It includes various plans and schemes in the selecting, organizing and conducting of farms; also studies with reference to gain or loss in planning rotations and cultivating grains, root and forage crops; managing fields, laying out roads, fences, ditches and lanes; in short, a proper business and executive management of farms.

Fruit, Vegetable and Flower Gardening:—

The course offered in fruit, vegetables and flower gardening gives the student a thorough working knowledge of the principles and practices of the most important lines of gardening work. It includes practical work in the orchard and garden, hot-beds, forcing-houses, cold frames, their construction and manipulation. Methods of planting, cultivating and managing garden crops. Principles of pruning, grafting, budding trees, training grapes and studying landscape gardening. The causes of plant disease and insects are discussed and remedies for combating the same are taught. A free use of State and Government bulletins pertaining to this work is made.

Home Nursing:—

Home nursing deals with a study of the composition of the human body; digestion, food in sickness, disease such as scarlet fever, measles, consumption, etc., lifting and handling of patients, local applications, emergencies and bandaging.

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Household Economy:—

Household economy is the study of the different sources of income, particularly with reference to the farm, taught from the standpoint of existence, comfort, culture, and philanthropy. The work comprises furnishing houses, decorating houses and cost in maintaining them.

Household Hygiene:—

The purpose of household hygiene is to give the student instruction in taste and the laws of hygiene that should influence the selection of styles of building, furnishing and maintaining a house. Work is given in the disposal of water, heat, light, surroundings, insects, such as house flies, mosquitos, ants and bed bugs. Government bulletins along these lines are also studied and discussed in the class.

Laundrying:—

The laundrying course teaches the principles of laundrying as is ordinarily done in a modern home. It covers a study of water, soap, starch, washing blues, acids, disinfectants, washing and ironing flannels, cottons, colours, and other useful things.

Millinery:—

The aim in giving millinery is to teach young women how best to make use of materials with the means at hand. This work is given in the Fall and again in the Spring. Fall millinery includes wire and buckram frames, renovating tinting, remodelling, preparing of trimmings, making folds, bows, hats, etc. Spring millinery consists in studying styles, materials, making lace, embroidered hats, etc.

Music:—

Chorus music is taught in general exercises to all members of the school. Music is considered a valuable factor in home and social life.

Plant Life:—

The course acquaints the student with the workings of the natural laws in growth and habits of plants. Seeds and plantlets of oats, corn, clover, potato, sugar beet, bean, radish and acorn, their similarities and dissimilarities in structure, power of germination and vitality are studied. Functions of root, stem, leaves, buds, flowers, fruit and seed are taken up systematically. Magnifying lens and microscope are used freely whenever necessary and possible.

Poultry:—

The poultry course gives the best methods of raising feeding and managing fowls for the home and for the market; egg production, marketing, managing incubators and brooders; planning and building poultry houses, etc.

Practical Mechanics:—

The work includes pattern making, moulding and casting. Working in Portland cement, rope splicing and knot tying, harness repairing and varnishing; also in home decoration both interior and exterior.

Practice and Science of Agriculture:—

During both the first and the second years the young men spend four hours of each week in doing practical work in the fields, barns, shops and orchards. The exercises and lessons cover such work as planting, cultivating, hoeing, harvesting and storing crops, making drains, planting, grafting and pruning trees, laying out drives and lanes, building fences, repairing and oiling harnesses, making halters, setting up farm machinery. Work is also given in most approved ways of manure spreading and different methods of ploughing in the field, etc.

Sewing:—

The work is designed to train the student in the use of healthful and appropriate clothing and also in the needle work of the home. The work extends through two years. The first year's work covers model work, such as stitches, button holes, hems, darning and various kinds of mending and patching, drafting patterns for and making a suit of underwear. The student obtains much practice in hand and machine work during the year.

The second year's work consists in drafting, designing and making patterns for heavy and thin dresses and shirtwaists. Each girl makes her own graduation dress.

Soils and Fertilizers:—

The work in soils and fertilizers familiarizes the student with the origin, formation, composition, tilth and fertility of different soils and different commercial fertilizers. It includes lectures and laboratory work on soil temperature, movement of moisture, preparation of seed beds, methods of cultivation, implements of tillage, drainage, management of clayey, sandy marshy soils. Values and preservation of farms manures, their application and the effect of various systems of farming on the maintenance of fertility. Much of this work is given in the laboratory and in the field.

Stock Judging:—

The work in live stock judging includes text book work, lectures and a study of the points, characteristics and the laws governing them in the various breeds of horses, cattle, sheep and swine. Practice is given in judging live stock by visiting with students, large live stock farms in the country during the year.

BACK TO THE FARMS.

Three classes of students have graduated and it would appear that what is true of the graduates of the Menominee school would in large measure be true of similar schools operated in other States. Of the graduates of 1909, 1910 and 1911, 72%, 89% and 76% respectively have gone back to the farm and the home. Only in one case has a city young man graduate accepted a position in a factory, but this year he attends the Agricultural College. Several graduates have filled the positions of inspectors of milk and cream for the State during the summer months for the past few years. A few have gone into the dairy business and a number have been placed in responsible positions leading up to managers of large farms. Practically all of the men graduates are on the farm or work along some special phase of farming.

Those of the young women who are not engaged on the farm or in the kitchen have taken an extra year's work in the Normal Training School for teachers in the city and are now actively engaged in teaching rural schools and are doing good work.

LEGISLATION IN THE UNITED STATES.

As showing the direction of effort and progress in the United States in connection with this movement for County Farm Life Schools, five items are submitted from the Report of the Commissioner of Education of the United States (1911).

MINNESOTA.

Fifty consolidated rural schools were authorized in 1905, each to have ten acres of land for instruction in farming; special State aid to not more than one school in each county. County

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agricultural High Schools were authorized in 1905. For properly equipped High Schools maintaining agricultural departments approved by the State Department of Education, the State will contribute two-thirds the cost of maintenance not exceeding \$2,500 annually. Ten such schools are now established, located at Albert Lea, Alexandria, Canby, Cokato, Glencoe, Hinckley, Lewiston, McIntosh, Red Wing, and Wells. A recent act of the Legislature permits the establishment of 20 more such schools. These schools are to be located at Kasson, Warren, Sleepy Eye, Westbrook, Worthington, St. James, Northfield, Litchfield, Little Falls, Willmar, Madison Hector, Wheaton, Cloquet, Deer River, Milaca, Bemidji, Fergus Falls, Thief River Falls, and Spring Valley. A law effective August 1, 1911, provides \$1,000 to each of such high and graded schools as shall maintain a course prescribed by the High School Board in Agriculture and either in Home Economics or Manual Training. This shall not apply to any schools receiving aid for industrial courses under any other act. Agriculture is taught in the State Normal Schools at Duluth, Moorhead, St. Cloud and Winona. Three Secondary Schools of Agriculture giving three year courses are maintained by the State University. They are located at Crookston, Morris, and at the University farm at St. Paul.

NORTH DAKOTA.

The Legislature of North Dakota in the 1911 session passed several Acts of importance relative to agricultural education. Lessons in Nature Study and Elements of Agriculture have been added to the branches to be taught in all common schools, and Agriculture may be offered as an optional subject for a teachers' certificate. A law to provide for the establishment and maintenance of a department of agriculture, manual training and domestic science in state high graded and consolidated schools provides that any such school having the proper facilities may, upon application to the high school board, be designated to maintain an agricultural department. Each such school shall employ trained instructors in agriculture, manual training, and domestic science, and provide at least ten acres of land suitable for a school garden. Said Department shall offer instruction in soils, crops, fertilizers, drainage, farm machinery, farm buildings, breeds of live stock, stock judging, animal diseases and remedies, production, testing and hauling of cream, the manufacture of butter and cheese, the growth of fruit and berries, management of orchards, market garden and vegetable crops, cereal grains, fine seeds, book-keeping and farm accounts and all other matters pertaining to general practice. Each school shall receive annually \$2,500 State aid. This Bill will not become effective immediately as the section appropriating the money for such for 1911-12, was vetoed by the Governor for the reason that the revenues of the State had been exceeded by other appropriations. All other portions of the Bill were approved.

NORTH CAROLINA.

The Legislature of North Carolina in an Act approved March, 3 1911, made provision for "country farm life schools" for the training and preparation of boys and girls for farm life and home making. The course of study subject to the approval of the State Superintendent of Public Instruction, shall include practical work on the farm by the boys and practical work in all subjects relating to housekeeping and home making by the girls. A high school department shall be conducted in connection with these schools, offering the course of study prescribed under the public high school law of the State for first grade high schools. The farm life school and the high school department shall both be under the control and management of a Board of Trustees consisting of one member from each township of the county. The schools may not be located in any city or town of more than 1,000 inhabitants, nor within two miles of the corporate limits of any city or town of more than 5,000 inhabitants. For maintenance the county or township or school district, or all combined where the school is located shall provide a school building, dormitory buildings with accommodation for at least 25 boys and 25 girls, a barn and dairy with necessary equipment, and a farm of not less than 25 acres, all subject to the approval of the State Superintendent of Public Instruction. The State will pay annually to each approved school \$2,500. No person shall be employed as principal of such a school who does not hold a high school teacher's certificate on all required subjects except Latin, Greek and modern languages, including an additional certificate from the State Board of Examiners and the President of the North Carolina College of Agriculture and Mechanic Arts, stating that he has furnished evidence satisfactory to them of his qualifications by special training and practical experience for said position. A similar certificate is required for teachers for the special training of girls for home-making and house-keeping.

In addition to the regular courses these schools shall conduct agricultural farm life extension and demonstration work and shall offer short courses in farm life studies for adult men and women. All of the work of each school shall be under the general supervision of the County Superintendent of Public Instruction, the school being in all respects an organic part of the county public school system.

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Craven county voted, during the past summer, to establish a school under the provisions of this Act. In Guilford county, under a special provision of the Legislature, the agricultural work began in September in three public high schools.

NEW YORK.

An Act in New York State, approved July 26, 1911, provides for an advisory board to consider plans for the promotion and direction of agricultural education and the advancement of country life. This board is to consist of twelve members, including the Director of the State Agricultural College, the Director of the State Experiment Station, the Deans of the State Schools of Agriculture at Alfred University, St. Lawrence University and Morrisville, a member of the State Fair Commission and three other persons appointed by the governor. An Act approved July 28, 1911, provides for a new State School of Agriculture to be located at Cobleskill, Schoharie county, to be known as Schoharie State School of Agriculture. The school will give instruction in agriculture, mechanic arts and home-making and will engage in agricultural extension teaching. It shall be controlled by a board of Trustees, including the State Commissioners of Education and Agriculture and five others appointed by the Governor. For establishing the school \$50,000 is appropriated.

MASSACHUSETTS.

Cities and towns may establish independent agricultural schools, which may receive State aid equal to one half the cost of maintenance. Smith's Agricultural School at Northampton is the only one in operation. The Montague Agricultural School, after receiving State aid for three years has been closed. By Act of the Legislature in 1911, State aid equal to two-thirds of the salary of a special instructor devoting his entire time to agriculture is given to high schools establishing departments of agriculture of the type recommended by the State board of education in its report on agriculture and industrial education. The Petersham Agricultural High school gives a four year course in Agriculture and now receives State aid under this act. The State Board of Education has appointed an agent to supervise agricultural departments so established. Agriculture is taught in at least 18 high schools and in the State Normal Schools at Bridgewater, Hyannis, and North Adams. A Commission appointed by the State Board of Education to investigate the needs of Agricultural education in the State has made an extensive study and submitted a valuable report, in which they recommend State aid for agricultural departments in existing high schools.

WHAT THE COMMISSION RECOMMENDS FOR CANADA.

SECTION 5: INTERMEDIATE RURAL CLASSES OR SCHOOLS.

In general the training at these schools would prepare pupils for engaging in farming and housekeeping occupations and for admission to the third year of Rural High Schools.

The qualifications for admission should be 13 years of age and over and the completion of the work of the Elementary School or ability to write, read, draw and calculate to the satisfaction of the Principal or Committee on Admission. Some of the classes would be separate for boys and girls. The courses would continue two years of five to seven months each at the school, and the rest of the year at the farm or home according to local conditions.

The kind of work to be done at the school would provide for series of experiences in proper sequence and have regard to the conditions of farming and housekeeping in the locality.

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The qualifications of teachers, accommodations and equipment and the classes themselves would be similar, as far as practicable, to those provided for by regulations and courses of study for the agricultural department of Continuation Schools, High Schools and Collegiate Institutes issued by the Department of Education of Ontario for the Session of 1911-12.

ONTARIO REGULATIONS.

The following extracts set forth the main points to be considered in this regard:—

Qualifications of Teacher: (1) The teacher of Agriculture shall hold the degree of B.S.A. from the University of Toronto, or a certificate of qualification from the Ontario Agricultural College. Such teacher may also take part in the Science work of the school at the discretion of the High or Continuation School Board and of the Principal, and with the approval of the Ministers of Education and Agriculture.

(2) Except when otherwise provided by the Minister of Education, the county representative alone shall teach the agricultural classes under the control of the advisory Agricultural Committee.

Accommodations and Equipment: When rendered necessary by the course of study the following shall be provided:

(1) A suitable laboratory and the equipment necessary to carry out the work as outlined in the course of study.

(2) Experimental grounds, separate from the ordinary grounds, for illustration purposes in the growing of various classes of farm crops and for training in experimental work. The area of the grounds shall be determined by local conditions.

School Agricultural Classes.

8. Pupils at a High or Continuation School centre may take the agricultural classes either alone or in addition to one or more of the other school classes.

9. (1) The courses shall be arranged with a view to meet the needs of the local farming community and shall be selected from the subjoined lists of subjects, with such additions or modifications as may be approved by the Advisory Agricultural Committee and the Minister of Education.

(2) The courses should be prepared by the teacher of agriculture for submission to the Advisory Agricultural Committee and, when approved by it and the Board, should be transmitted promptly to the Minister of Education for his consideration.

10. (1) The minimum length of a school course in agriculture shall be four weeks. Shorter courses for farmers are provided under the authority of the Minister of Agriculture.

(2) The total amount of time to be given each class per week shall be settled by the Advisory Agricultural Committee, after consultation with the teacher of agriculture.

(3) In the construction of his time-table and the management of his school classes, the teacher of agriculture shall be subject to the Principal of the High or Continuation School.

School Departments of Agriculture.

11. (1) A Department of Agriculture may also be provided in a High or Continuation School with a maximum course of two years.

(2) Pupils taking such Agricultural department shall take in addition to the agricultural classes, which also shall be selected from the subjoined list of subjects, the academic subjects which are obligatory upon all High or Continuation School pupils: namely, geography, arithmetic and mensuration, English grammar, writing, reading, English composition, English literature and history, with such suitable modifications and with such additional subjects as may be deemed expedient by the Principal and the parent or guardian of the pupil.

(3) Pupils who take the two years' Course of the Agricultural Department herein provided for, and whose competency is attested by the principal of the school and the teacher of agriculture, shall be eligible for entrance to the second year work of the Ontario Agricultural College.

NOTE.—It is not expected that agricultural departments, separately organized, can be established for some time. The Advisory Agricultural Committee and the teacher of agriculture should, however, keep constantly in view the desirability of such establishment.

The list of subjects at these Agricultural Classes is as follows. The detailed elaboration of each subject is omitted from this statement.

(1) Field Husbandry, (2) Animal Husbandry, (3) Dairy Husbandry, (4) Poultry, (5) Horticulture, (6) Forestry, (7) Agricultural Botany, (8) Entomology, (9) Agricultural Physics, (10) Agricultural Chemistry.

THE CO-ORDINATION OF SUBJECTS.

The work at the Intermediate Rural School building should be co-ordinated in the case of every pupil with some definite, practical work (Farming-Project or Housekeeping-Project) carried out at home or elsewhere. Effort and progress in this home-work should be regarded by the teacher as an integral part of the educational course.

Science subjects should be taught particularly in the relation of their application to rural work, rural problems, and the principles underlying the systems, methods and operations of farming and housekeeping.

On the literary, social and cultural side, special attention should be given to language, literature, history, physical culture, singing and such experiences as make for the enrichment and efficiency of intellectual and social life in rural districts.

In cases where the teacher is not qualified to direct and estimate the progress and values of the work of the pupils in the Farming-Projects or the Housekeeping-Projects, a committee of one, two or three should be appointed to co-operate with the teacher. The District or County Instructors would be competent to counsel on what to do and how to do it in these educational projects. They could assist in co-ordinating the Farming-Projects and the Housekeeping-Projects with the work of the school.

CHIEF OBJECTS OF THE COURSE.

The object of the school would be the preparation for general farming and successful life in a rural community. The course of work should be provided with that in view, and the methods of instruction to be followed should be subordinate to that chief aim. Too often the method of instruction in rural and other schools has been the one which seemed the best adapted to preparing pupils to pass examinations for which the chief qualification has been the possession and exercise of an excellent verbal memory. There should be the maximum of practical work arranged in proper sequence for the development of the pupil and, consistent with that, the use of books. So far as the benefit to the pupil is concerned, this minimum of time on books would likely result in the use of books in such a way as to render the student the maximum of service.

Throughout the whole course, and in all the work and study, due regard should be had to the development of a spirit and habit of good citizenship. That may be best accomplished by the student participating in forms of activity which are part of the social life of the community and of the social and intellectual life of the school as an institution.

CO-ORDINATED AGRICULTURAL EDUCATION.

The Intermediate Rural School would seem to be well suited for carrying out the principles which underlie the plan of co-operative or co-ordinated industrial education. The best known of the co-operative industrial schools are in the State of Massachusetts. Information regarding them is contained in Part III of the Report. The Board of Education there has, in various publications, presented detailed information on Co-operative Agricultural Education. The information published by that body has been freely drawn upon for what appears on that subject in the following part of this Section. The Commission is also indebted to Mr. Rufus W. Stimson, Agent for Agricultural Education of the Mass. State Board of Education, for valuable information obtained from "Conversations" with him, part of which is given under the Report on Smith's Agricultural School and Northampton School of Technology. (See page 317).

FARMING-PROJECTS AND STUDY-PROJECTS.

Co-ordinated Agricultural Education is made up of two parts co-ordinated in educational courses for boys and young men from 14 years of age onwards. One part is made up of some definite undertaking to be carried on by the boy at the farm where he lives, the other part is made up of the instruction, study and practical work to be carried on at the school which he attends. The productive work at the farm is called a Farming-Project and the work at the school with the reading, discussions and study at home become the Study-project. The Study-Project is different from the study of subjects as such in the order of the logical presentation common in text-books. The Farming-Project and the Study-Project are arranged to supplement each other.

OBJECTS OF FARMING-PROJECTS.

The Farming-Project, in a part-time co-ordinated Rural High School or Intermediate Rural School, may be indicated as some definite piece or part of productive or conserving farm work, (1) planned to yield results available in material or money values to the pupil, and (2) carried on within specified limits in such a way as to yield educational results in the pupil by practice in observing, thinking, learning, planning, managing and co-operating with others.

That is to say the Farming-Project, or undertaking to be carried out, should be of a sort requiring systematic study, reasoning, planning and action by the pupil without compulsory direction. It should be arranged for the sake of the undertaking itself and for the sake of the educational benefit to the pupil from the training he would receive thereby. The latter would be the chief end, while the former would be the chief means.

For pupils in rural schools, perhaps more than others, it is wholly beneficial if indeed not entirely necessary that the experiences of practical work and the theoretical instructions which they receive, or studies which they follow, should

come close together in point of time as well as in character of content. It may be taken as a sound principle in education that the main steps in every complete educational experience are observing, thinking, feeling, reasoning or planning and managing towards and into some form of expression. The closer in point of time the steps are taken together, the greater the growth of power, the surer the formation of habits, and the more certain the acquisition of knowledge which will not be forgotten and will be available in every-day life.

THE PART-TIME FEATURES.

The co-ordinated plan provides, in the main, for the pupil giving continuous attendance at a Rural High School or Intermediate Rural School during about six months of the year, when he can be spared most conveniently and advantageously from the work of the farm, and devoting his time to work on the farm during the remainder of the year.

During the period when the attendance at the school is continuous, it is desirable that some Farming-Project which would not require a large portion of the pupil's time should be carried on.

During the period when the pupil is working continuously on the farm, the Farming-Project, carried on as part of his school course and training, should not be of such a large character as to occupy more than from one-sixth to one quarter of his working time. The remainder of his working time should be available for the general work of the farm as required by his father or other person in charge. The Farming-Project should not be so small as to tempt the boy by its smallness to consider it a negligible part of the actual productive work of the week.

Other subjects to be taken up during the courses would be Agricultural Chemistry, Agricultural Botany, English or French, Mathematics, History, Good Citizenship, Singing and Physical Culture. An effort should be made to relate them as far as practicable to the Farming-Projects and the Project-Studies.

It has been suggested that the division of time in carrying out the School, Home and Farm Co-ordinated method of training might with advantage be as follows:—For the execution of the projects, including work during vacations and other out-of-school hours, 50%; for the related study, 30%; for systematic courses of composition, literature, history, civics, mathematics and other subjects of general culture and good citizenship, the remaining 20%.

The information acquired by the boy in connection with work of this kind would be retained as part of his mental equipment; it would be organized as part of his real knowledge for application, instead of being remembered for only a short time as part of the information which he could merely state in words somewhat similar to those through which he acquired a verbal acquaintance with it. There would be no likelihood of a boy forgetting information which he had acquired from observation, discussions or reading, when he had transmuted it into effort in connection with his Farming-Project, and had realized upon the application of it either through failure or success or partly the one and partly the other.

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VARIETY OF FARMING-PROJECTS.

The Farming-Project might be growing vegetables for the house or for sale; growing a quarter of an acre of potatoes; growing half an acre of Indian corn; growing seed grain on a hand-selected plot, etc., etc. Or the Farming-Project might be caring for some kind of live-stock, such as a flock of hens; a number of pigs; a number of sheep; three or four cows; two or three horses, etc. Or the Farming-Project might take the form of carrying out some necessary part of farm management or farm work suited to the boy's age and ability. In the care of live stock a record should be made of the amounts and kinds of feed consumed and of the products obtained, as for example, the number of eggs or the quantity of milk.

ARRANGED PROGRESSIVELY.

The Farming-Projects should be arranged in progressive sequence beginning with the more elementary and simple undertakings. During the first year the Farming-Projects would deal with one or more crops and would be Farming-Projects with plants; during the second year the Farming-Projects might deal with the care of animals and go under the name of Farming-Projects with animals; during the third year more advanced work might be undertaken with plants; and during the fourth year more advanced work might be undertaken with animals. As for example: if during the first year the Farming-Project had to do with the growing of vegetables or cereals, during the third year the Farming-Project might take the form of growing fruits, small or large, or growing a small area of potatoes, of Indian corn, or some other cereal with a view to the improvement of seed or crop by means of selection or some special treatment. During the second year the Farming-Projects with animals might be confined to poultry, pigs or sheep, and during the fourth year they might be concerned chiefly with cows or horses.

There is no good reason why there should not be a continuation of the Farming-Project of any one year during the succeeding year in addition to the Farming-Project which was proper in sequence for that year. However, the chief attention of both the pupil and instructor should be concentrated on the particular Farming-Project for that year. While each year would be complete in itself, there would be advantage to the pupil from following a two or a four year course in succession as arranged by competent authorities.

ALL INTERESTS CONSULTED.

The Farming-Project to be carried on by the pupil could be arranged to advantage only after consultation and careful consideration by the parents, the teacher and the pupil. It is desirable and preferable that the Farming-Project should be one which would appeal to the boy's taste and preference and lead to definite revenue or profit from the work done. The interest awakened and kept active in the boy from the latter consideration is a very important factor.

The choice of Farming-Projects will be determined to a certain extent by:—

- (1). The attitude of the farmer and the kind of farming which is or can be carried on;
- (2). The teacher, the course of study, and the equipment of the school;
- (3). Most of all, the pupil himself and his preference or tastes for certain lines of work.

To ensure success it is necessary that there should be a full measure of hearty and sympathetic co-operation between the farmer, the teacher and the boy. That will lead to the boy getting the use of as much of the farm plant as is necessary and being allowed as much of his time as is required to carry through his Farming-Project.

SUPERVISION BY COMPETENT TEACHER.

It is desirable that the teacher should visit the boy at the farm at least once every month and go over and discuss with him the progress of his Farming-Project. At the same time the teacher should examine and criticise the records of the Farming-Project, which would be kept regularly and systematically. These records should contain a statement of the dates and time spent on the work, the kind of weather, the results observed, the progress of the crop, and the boy's judgment of what should be undertaken the following week. The examination of these records of his intentions for the future, made once a month with the teacher in the light of what actually had been done, would be valuable in developing the habit of exercising good judgment on conditions as they arose. The school should provide blank forms for these records to assist the boy in making them regularly, and in such a form as to be advantageous for his own education and for comparison with other records.

This implies that the instructor or teacher, under whose supervision this work is undertaken and carried on, must be thoroughly competent, in attitude of mind, in knowledge, in practical ability to do and to manage, and in enthusiasm for boys as well as for farming. Such teachers working with from fifty to seventy-five boys each would provide the farmers-that-are-to-be with the best of qualifications for practical farming and rural leadership.

QUALIFICATIONS OF TEACHERS.

As a rule the teacher or instructor in charge of Co-ordinated Agricultural Education should be a graduate of an Agricultural College. He should have had practical knowledge of and experience in farming operations and farm management such as prevail in the locality. It would be all the better if he had some intimate knowledge of local climatic and marketing conditions. One of his main duties would be to supervise acceptably and efficiently the Farming-Projects of the pupils. Another part of his task, not less difficult, would be to lead the pupil to take up and follow systematic study bearing directly upon the Farming-Project. That would advance his education by a wider and more systematic acquaintance with the agricultural sciences which relate to farming.

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The instructor, by his discussions of the Farming-Projects at the home or at the school, should aim to develop in the pupil the power and the habit of clear thinking, of correct and accurate statement, and of planning work to conform to the practice believed by him to be best.

SOME OF THE ADVANTAGES.

Where no provision has existed for the carrying on of systematic productive work, in connection with the organized studies at the school, the pupil has been unable to bring the different elements together for his growth in either intelligence or ability. When the Subject-Study has been carried on by itself, unrelated at the time to practical or manipulative work in connection with it, only a few pupils are usually able to profit by the information thus acquired. When both are carried on together and the pupil writes up a record of what he has observed, what he has planned or reasoned, and what he has done, the record itself is both a means toward and an evidence of clear and consecutive thinking on the part of the pupil. The habit of putting ideas into written form is in itself good mental training and also puts the ideas thus expressed better within the command of the pupil.

The progress to be expected in the boy himself would be, in the main, along five lines:

(1). The development of the habit of observing and learning by trying to accomplish a definite useful piece of work in which his interest was keen and continuous.

(2). The development of practical ability from trial and experience in carrying out processes necessary to give effect to his plans; the development of skill in work and of power in managing himself with the least waste of time and strength, and in managing tools, machinery and materials to the greatest advantage.

(3). The formation of the habit of seeking information which could be depended upon to enable him to understand the principles underlying what he was planning to do and trying to do. That would be fostered by discussion with his father, the teacher and others as to how best to accomplish the desired ends, by conferences and discussions with other boys who were carrying on Farming-Projects, and by the Study-Project of reading and study arranged in proper sequence to give him a wider range of knowledge of use to him in the definite Farming-Project which he had in hand.

(4). The establishment of habits of forming reasoned judgments and opinions upon situations, conditions, theories, principles and methods of farm work and management.

(5). The development of will-energy to give effect to his decisions and of desire and ability to co-operate with others in useful undertakings.

SECTION 6: RURAL HIGH SCHOOLS.

The Rural High School, with its four year course, would give a wide basis of general training and knowledge upon which to base further study and work. It is an institution which should give an excellent and suitable education for rural life and should prepare students for admission to an Agricultural College.

The Agricultural College for its part should be occupied chiefly with training men for the higher grades of professional work, their training and status being in every way equal to that of technical engineers.

Moreover, the Rural High School would be different from the County or District Agricultural School in so far as the latter would be a residential school and have only one and two year courses, each complete in itself. The latter would be attended only by pupils of the age of 17 years and over.

The qualification for admission to the Rural High School would be 13 years of age and over and the completion of the work of the Elementary School, or ability to read, write, draw and calculate to the satisfaction of the Principal or a Committee on Admission. Some of the classes would be separate for boys and girls.

The course would be four years. During the first two years the work to be done would be similar to that in the Intermediate Rural School with the difference that the work at the High School might continue longer each year.

Science subjects should be taught particularly in the relation of their application to rural work, rural problems and the principles underlying the systems, methods and operations of farming and housekeeping.

On the literary social and cultural side, special attention should be given to language, literature, history, physical culture, singing and such experiences as make for the enrichment and efficiency of intellectual and social life in rural districts.

In general the training at this school would prepare pupils for engaging in rural occupations and housekeeping and for admission to Agricultural, Housekeeping and Arts Colleges.

In cases where the teacher is not qualified to direct and estimate the progress and values of the work of the pupils in the Farming-Projects or the Housekeeping-Projects, a committee of one, two or three should be appointed to co-operate with the teacher. The District or County Instructors or Supervisors would be competent to counsel on what to do and how to do it in these educational projects. They could assist in co-ordinating the Farming-Projects and the Housekeeping-Projects with the work at the school.

The qualifications for the teachers would be similar to those described under the Intermediate Rural Schools at page 336.)

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SECTION 7: RESIDENT OR TRAVELLING INSTRUCTORS AND INSTRUCTRESSES.

A: INSTRUCTORS FOR FARMING.

The employment of District Agricultural Representatives has become general in the Province of Ontario, and four areas in the Province of Quebec are served by the Macdonald College District Instructors. That work has proven itself to be eminently useful and acceptable to the farming communities. In the opinion of the Commission similar provision should be made throughout Canada as soon as competent men and women are available for the positions. Since the work reported upon at length in connection with the Province of Ontario and Ireland includes most of the good features found elsewhere, it is not thought necessary to report upon itinerant instruction in detail as examined in other places.

ORGANIZATION IN ENGLAND.

The *Rural Education Conference* is a body which was constituted in England by Minutes of the Presidents of the Board of Agriculture and Fisheries and of the Board of Education, to consider all questions regarding rural education which might be submitted to them by either Department. On the 1st December 1910 it submitted a report on County Staffs of Instructors in Agricultural subjects, which contains information of value to Local Rural Development Boards or other authorities in Canada in charge of the development of agriculture within county areas. In England many counties are associated with some Agricultural College or other higher institution of education as a centre. The report says in part:

10. Any County Council not associated with an efficient centre which finds itself unable or unwilling to establish a minimum Staff of its own should associate itself with the Council of an adjoining county.

The minimum Staff should be made up as follows:—

(a) *Agricultural Organiser and Adviser*, who should, as a rule, supervise the agricultural and horticultural work done by the county, and act as secretary to the Agricultural Education Committee or Sub-Committee. He should be in close touch with the Head of any Centre with which the county is associated. He should (so far as his other duties may permit) give some instruction himself, but as a rule he would require competent instructors to assist him.

His main functions would be to get into touch with farmers and other agriculturists, and for this purpose to visit local markets and shows and farmers' clubs as well as individual farms and small holdings. He should also enlist the sympathy and help of agricultural associations. He would discuss, and advise agriculturists on, such questions as diseases in crops and animals, manures, cropping, insect pests, &c. He would distribute leaflets or pamphlets relating to rural work (such as those published by the Board of Agriculture), explain them and possibly make them a basis of discussion. He would organise and supervise illustrative experiments and demonstration plots. He would organise classes for instruction in farm labour subjects and prize competitions in connection with such subjects as hedging, ditching, thatching, &c.

- After becoming thoroughly acquainted with the county, he would advise the Committee as to the establishment of permanent centres for agricultural instruction, such as Farm Institutes, Winter Schools, &c.
- (b) *Horticultural Instructor*, who should give courses of instruction at approved centres, carry out demonstrations on approved horticultural practice, give advice to small holders, allotment holders, cottagers, and others. He should have special charge of the work connected with school gardens and such nature study as may be connected with them. In counties in which Horticulture is of special importance it may be desirable that the Horticultural Instructor should be independent of the Agricultural Organiser. He should be in touch with any Centre of Horticultural Instruction with which the county is associated, and might, by arrangement, give some of the instruction therein.
- (c) In most counties a *Dairying Instructor* will also be required, who should conduct a fixed or migratory dairy school and give advice when required to farmers and others in dairy practice. In many counties separate instructors would be required to give instruction in the different branches of the dairy industry.
11. This *minimum* Staff would require to be supplemented by—
- (a) Competent scientific Investigators and Analysts, who would ordinarily be supplied by the centre with which the county is associated or from some University or Agricultural College.
- (b) Instructors in special branches of industry, e.g. Farriery and Veterinary Hygiene, Poultry and Bee-keeping, Cider-making, Hop-growing and such manual processes as Hedging, Thatching, Sheep-shearing, &c.
- These practical Instructors would in most cases be regular members of the staff of the larger, or combined, counties, but in other cases (e.g., manual processes) local experts might more conveniently be employed as required.
- (c) Instructor in Forestry, who should be supplied from one of the recognised Forestry Centres.
- (d) Organisers and Instructors in the Economics of Agriculture, e.g. Co-operation and Credit Banks for occupiers of land, the grading and marketing of produce, insurance of stock, &c. These would ordinarily be required to cover larger areas than counties, and might be supplied through a central body, such as the Agricultural Organisation Society, subsidised by the Government or by the County Councils employing the Instructors.

Although perhaps not strictly within the terms of our reference, we think it of vital importance that the Agricultural Staff of a county should work under a special committee or sub-committee of the County Council in accordance with the recommendation of the Departmental Committee on Agricultural Education as contained in paragraph 117 of their report.

The paragraph runs as follows:—

"Each county may be left to adopt the system best suited to its own requirements, but the Committee would lay stress on the expediency of there being in every county a special committee, or its equivalent, to organize and supervise Agricultural Education. It is moreover essential that in order to gain the confidence of the farming classes any such special committee should include a large proportion of members engaged, or directly interested, in agriculture or its allied industries."

THE EXAMPLE OF LANCASHIRE.

The following is a statement of the staff actually provided for the county of Lancashire, in which mixed farming is followed:—

Area.	Population.	Number of Agricultural Holdings.	
		Owned or mainly Owned.	Rented or mainly Rented.
1,089,255 acres.....	1,751,449	1,841	17,718

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Permanent County Staff:—

1. Organiser or Secretary of Agriculture, Horticulture, and Lecturer in Agriculture.
- †2. Lecturer in Agriculture.
- †3. Lecturer in Agriculture and Bacteriology.
4. Lecturer and Instructor in Horticulture.
5. Instructress in Dairying (at County Dairy School).
6. Assistant Instructress in Dairying (at County Dairy School).
7. Migratory Instructress in Dairying.
8. Migratory Instructor in Cheese-making (in season only).
9. Instructress in Poultry-keeping (at County Poultry School), also Migratory Instructress.
10. Assistant Instructress (at County Poultry School).
11. Migratory Milk-tester.

Staff giving part-time to Work:—

- | | |
|--|--------------------------------|
| †1. Lecturer in Chemistry. | †7. Lecturer in Mathematics. |
| †2. Lecturer in Agricultural Chemistry. | †8. Lecturer in English. |
| †3. Lecturer in Botany and Geology. | †9. Lecturer in Book-keeping. |
| †4. Lecturers in Veterinary Science. | †10. Instructor in Drawing. |
| †5. Lecturer in Engineering and Mechanics. | †11. Instructor in Woodwork. |
| †6. Lecturer in Physics. | 12. Instructor in Bee-keeping. |

COST TRIFLING COMPARED WITH BENEFIT.

In the memorandum of the English Board of Education, published in 1911, the experience of a medium sized county is cited, showing that work similar to what has been indicated, but not so complete, can be carried on quite effectively there for a total annual expenditure of \$12,500. With the provision of a farm school it is estimated that a total annual expenditure of about \$15,000 would be required, apart from the capital charges.

The same memorandum says:—"Wherever such work has been effectively done, farmers declare that the expenditure is trifling compared with the benefit to the agricultural community."

LESSONS FROM BELGIUM.

Particularly fruitful work has been done by itinerant instructors in France and Belgium. The report of Mr. R. B. Greig to the Board of Education in England in 1912 says:—

The State Agronomist or itinerant agricultural instructor is generally admitted to be the chief cause of the wonderful improvement which has taken place in Belgian agriculture during the last quarter of a century. . . The results of his instruction can be measured in various ways, and quite definitely by the Agricultural statistics, which show that Belgian farms produce £10,000,000 more annually than they did 25 years ago at a cost for every kind of agricultural education of not more than £40,000 a year. What is now the densest population in Europe is almost supported by the product of its own farms, which yield an average of £20 per annum per acre as compared with less than half from British land.

The State Agronomists, who are stationed, one or more, in every Commune, met at first with some opposition and much apathy. For the first few years they delivered single lectures at any centre likely to produce an audience, but as interest increased they developed their lectures into courses, and now they base their instruction on ten groups of subjects from which a course of fifteen lectures extending over the winter months is selected.

The groups are:

- (1) General conceptions of Agriculture.
- (2) The rational feeding of cattle.

†Forming the Staff of the Agricultural Department of the Harris Institute, Preston.

- (3) Zoo-technique and farm hygiene.
- (4) The rational treatment of milk, butter and cheese.
- (5) Agricultural book-keeping and accounts.
- (6) The raising of poultry.
- (7) Rural Law.
- (8) Elementary ideas of rural economy.
- (9) Co-operation and Insurance.
- (10) Agricultural hydraulics.

A village selects a course from these groups and the State Agronomist arranges for the instruction, much of which must be supplied by specialists. As a rule a number of farmers, chemists, managers of creameries, and accountants who are qualified by education and experience to instruct in their own specialities, are employed for part of the course and paid a fee for each lecture. A State Agronomist may thus have ten or fifteen colleagues under his direction and supervision. A somewhat similar procedure has been tried successfully in Canada. The lines indicated are those on which some English counties are now working, with this important difference, that, as a rule, there is no continuous course of instruction in any one village throughout the winter. The result of all this mental activity in Belgium is a rapid increase in rural prosperity, shown not only by the growth of the national agricultural income, but by the numerous co-operative societies (some of which contain 50,000 members), stock insurance associations, credit banks and farmers' creameries.

DUTIES OF DISTRICT REPRESENTATIVES IN ONTARIO.

This information regarding Belgium was cited chiefly to illustrate the fact that the work is organized and that a State Agronomist stationed in a single commune may have 10 or 15 colleagues under his direction and supervision. That applies also to a County Organiser and Instructor in England.

Dr. C. C. James, at that time Deputy Minister of Agriculture for the Province of Ontario, presented terse information on this matter before the Commission of Conservation at its annual meeting, January 1911. He reports in a summary the work undertaken by the District Representative in the county of Dundas, Ont., as follows:—

1. Making the personal acquaintance of as many citizens of my district as possible and the revealing of myself to them that they may have confidence in me.
2. Advisory work from office, personal and by correspondence.
3. Three months' Short Course for boys in Collegiate Institute.
4. Organizing and conducting of 3-day Short Courses (5 Short Courses, 1 Fruit Institute).
5. Organizing and supervision of Farmers' Clubs.
6. Assistance in conducting excursions to places of learning—2 to Macdonald College during 1910.
7. Preparatory work leading up to organization of Horticultural Societies.
8. The interesting of Agricultural Societies and farmers in Standing Field Crop Competitions.
9. Distribution to good farmers of seed grain from prize-winning fields in Field Crop Competition of 1909.
10. Demonstrations (three) in spraying of mustard.
11. Making of drainage surveys for farmers. Drainage demonstrations.
12. Demonstrations of value of underdrainage by draining of low-lying portion of school grounds, 6 acres.
13. Conducting of demonstration plots on school grounds. Plots 3 acres in extent.
14. Conducting of fertilizer experiments on 3 different farms.
15. Conducting of stock judging competitions for boys at fall fair—4 in all.
16. Exhibit at County Fair, Morrisburg:—Insects, plant diseases, weeds, products of sprayed orchards, spraying materials, apparatus, etc., produce of Demonstration Plots, distribution of bulletins, etc.
17. In 1909, during fair, actual drainage work going on. Taking of levels, grading, etc. demonstrated.
18. Demonstration of good orchard culture by personal (assistant and myself) care of 4 orchards; constant supervision and direction of care of another.

Different kinds of work are undertaken by the District Representatives in different areas to meet local conditions and local needs. The duties of the

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District Representative are as various as the conditions of rural life in the place. At one time the Representative is required to give one or more lectures, then to carry on practical demonstrations, and again to offer practical advice on some particular farming problem. It does not seem feasible for one individual to carry on these multitudinous duties satisfactorily and effectively, particularly as in each division more and more will be expected and more and more is required.

OUTLINE OF WORK FOR A COUNTY.

The matters of first importance to be provided for in Canada at the present time are:—

(1) Visits of inspection and instruction and advice to the individual farmers on their own places.

(2) Holding field meetings with farmers in connection with field crops, fruit culture, live stock, etc.

(3) Interesting the rural teachers in Rural Elementary Education so conducted as to serve agricultural and rural life.

(4) Arranging for and taking part in courses of instruction in Elementary Agriculture and School Gardening for rural teachers at convenient centres.

(5) Arranging annual gatherings and exhibitions to illustrate the year's work and progress in agricultural education.

(6) Arranging for short courses of from two to four days' duration at convenient centres throughout the county or district.

(7) Arranging for longer courses of systematic instruction during four months of winter. These may take the form of the Irish short courses, being held two half days a week at each place, classes at three centres being carried on each week.

(8) Arranging and giving lectures to Farmers' Clubs, Farmers' Institutes and other local organizations.

(9) Advising by correspondence and reporting on specimens of insect pests, weeds, soils, etc., sent in for examination.

(10) Distributing bulletins and other printed matter from the Departments of Agriculture and Education.

In general these Instructors would carry on work similar to some of that undertaken at present by District Representatives in Ontario and Quebec. It would be extended, according to the conditions of the districts, along the following lines:—

(a) They (the Instructors) should act in the capacity of co-ordinators between the school work and the Farming-Projects carried on at home by pupils attending the Intermediate Rural Schools and the Rural High School:

(b) They should arrange for short courses of instruction for young men who do not attend the Intermediate Rural School or the Rural High School.

Such courses might be given at one place during two half days in the week. That plan would enable the District Travelling Instructor to conduct one course at each of three centres concurrently.

The courses should be arranged in progressive sequence, and a course of reading should be provided in connection with each course.

(c) They (the Instructors) should provide systematic short demonstration courses in soils, crops, live stock, farm machinery, etc., etc., for the adult farming population.

(d) As soon as practicable they should be associated with the work of a Neighborhood Improvement Association and an Illustration Farm for the locality, similar to those arranged for by the Committee on Lands of the Commission of Conservation.

(e) As soon as practicable, they should be associated with the short courses as mentioned under Section 8: County or District Agricultural and House-keeping Schools.

ADULTS AND YOUNG PUPILS.

It is necessary to distinguish clearly and continuously between the kind of instruction and demonstration to be provided for adult pupils who are actually engaged in farming work, and the kind of educational help to be given to pupils at the Intermediate Rural Schools and the Rural High Schools.

When the adult pupils meet the instructor they have had considerable experience in the doing of things, and know the "How" of farming operations. They need instruction (information and guidance) to enable them to understand the "Why" of farming operations, and suggestions (explanations and information) concerning methods of management and the principles that underlie systems and methods of farming, such as preserving fertility of soil, selection of seeds, controlling weeds, rotation of crops, keeping live stock, etc.

On the other hand it is desirable that the Instructor should let the young pupils work out problems in Farming-Projects as part of the course (or series of experiences arranged in proper sequence). His main helpfulness would come from giving the work to be undertaken as a Farming-Project a didactic or educational setting, from directing the sequence in which different Farming-Projects should be taken up, and indicating sources whence the necessary information might be obtained. It is better in the case of young pupils that they should dig it out for themselves than that they should have full information presented in a pre-digested state in a lesson package.

One of the District Instructors might become a County Superintendent, supervising and correlating all the Industrial Training and Technical Education for development work within a County or larger area. After the first year or two more than one Instructor would be required in an ordinary County area.

B: INSTRUCTRESSES FOR HOUSEKEEPING.

These might carry on work, for the Housekeeping interests of the district, similar to that undertaken by the Resident or Travelling District Instructors for Farming.

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1. As a beginning, a Travelling Instructress in Housekeeping might meet a class of women arranged for by a Women's Institute, or other similar organization in the locality, one half day per week for a term of 20 weeks.

The other half of the same day the Travelling Instructress might carry on work with the girls and teacher in the school (Elementary, Intermediate or High) of the locality.

2. They should be connected, when necessary, in the capacity of co-ordinators, with the Housekeeping-Projects carried on at home by pupils attending the Intermediate Rural Schools and the Rural High School.

3. These Instructresses should provide demonstration lectures in Cooking and Housekeeping work, chiefly as a means of directing public attention towards channels along which systematic educational work could be conducted.

4. As soon as practicable, they should be associated with the Short Courses of a County or District Housekeeping School in the country or a Middle Housekeeping School in a town.

As soon as practicable, they should be associated with the work of Neighborhood Improvement Associations similar to those arranged for by the Committee on Lands of the Commission of Conservation.

It is important to bear in mind that there is an essential and fundamental difference between the kind of instruction and demonstration suitable for the women and that which would be advantageous to the girls in school. Practically what is said under "Adults and Young Pupils" on page 350 applies here.

After the first year or two, more than one Instructress would be required for an ordinary County area.

This matter is discussed more fully in the Chapter on Classes (or Schools) for Housekeeping.

SECTION 8: COUNTY OR DISTRICT AGRICULTURAL AND HOUSEKEEPING SCHOOLS.

These schools would serve the rural population to some extent as the industrial population of the towns would be served by the Middle Technical Schools for apprentices, skilled workmen and foremen and superintendents.

Courses: One or two years and also short courses of from one to three months for special subjects and industries. The courses would provide for a series of experiences in proper sequence, arranged to enable the student to acquire, (1) a wider knowledge of the principles underlying the systems, methods, operations and processes of their special occupation; (2) a wider range of knowledge and skill in the actual management of soils, crops, live stock products and homes, in the use of machines, tools and utensils, and in the making of things.

It is necessary to distinguish between the kind of instruction and demonstration for those who are practically adult pupils, and who have had considerable experience and practical work, and the kind of educational help to be given to pupils at Intermediate Rural and Rural High Schools. When the adult pupils

meet the Instructor they have had considerable experience in the doing of things and know the "How" of farming operations. They need instruction, information and guidance to enable them to understand the "Why" of farming operations, and require suggestions, explanations and information concerning methods of management and the principles that underlie systems and methods of farming, such as preserving fertility of soil, selection of seeds, controlling weeds, rotation of crops, keeping live-stock, etc.

On the other hand it is desirable that the young people at the Intermediate Rural and Rural High Schools should work out problems in Farming-Projects as part of the course. To them the teacher's main helpfulness would come from giving the work to be undertaken as a Farming-Project a didactic or educational setting, directing the sequence in which different Farming-Projects should be taken up, and indicating whence the necessary information might be obtained. It is better in the case of young pupils that they should dig it out for themselves than that they should have full information presented in a pre-digested state in a lesson package.

These County or District Agricultural Schools would be residential schools, and wherever it was practicable arrangements might be made to let the Young People's Social Service Schools occupy the premises at such times of the year as they would not be in use for the regular courses.

These schools would be suitable places at which to provide short courses and special courses in such branches as Dairying, Fruit, Vegetable and Flower Growing, Poultry-keeping, Bee-keeping, etc.

The classes and courses at these County or District Agricultural Schools would be much like the two year courses given at the present time at the Agricultural Colleges in Canada. An essential difference would be that the courses would not be framed for the purpose of preparing students to go on with the College education in agriculture, but would be specifically directed to qualifying those who took them to carry on the work of farming. (See Reports on County Schools at Menomonie, Wis. and Menominee, Mich. pages 324 and 328).

SECTION 9: YOUNG PEOPLE'S SOCIAL SERVICE SCHOOLS.

The People's High Schools of Denmark have supplemented the general education of the Elementary Schools. Their object has been to develop social and patriotic qualities of a high order in individuals and communities. The Agricultural Schools grew out of them, and they help to increase the attendance at all the Vocational Schools. They are regarded by the Danes themselves as among the chief factors in conserving and promoting national prosperity and strength.

They are schools in which the pupils are in residence. The young men attend during five months in winter; the young women during three months in summer.

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The schools, in most cases, are owned and carried on by private individuals under the supervision of the State. They receive small subsidies from the Government. They charge fees. A large number of Scholarships provided by the State are available to young men and women. These Scholarships provide about one half the total cost to a student for fees, which include board, living accommodation, etc. Ordinarily as many as one half of the pupils attending a school may be there on Scholarships.

There are about 70 People's High Schools in Denmark. It is estimated that about 7,000 young people attend them annually. That is equal to about one in every five of all the young people who come to 18 years of age annually in the rural population.

It would appear to be highly desirable that schools of this type should be established for the rural population in Canada. A beginning might be made by providing courses for young women at a few existing institutions, such as Agricultural Colleges, or other residential schools or colleges during summer vacation periods.

They might also be organized in connection with County or District Agricultural and Housekeeping Schools as under Division V.

To qualify for admission the candidates should be between 18 and 25 years of age and have educational attainment and character to the satisfaction of the Principal or a Committee on Admission.

The courses would be from three to five months, and the young men and young women would not be in residence at the same time.

The courses should be arranged and given for the purpose of cultivating and developing a sense of responsibility for life and its opportunities, social efficiency, public spirit and devotion to the country.

Emphasis should be laid upon Canadian and British History, Literature, Ability to use Books, Singing, Physical Culture and Social Service in the community. In this connection see extended Report on People's High Schools of Denmark in Part III).

SECTION 10: SCHOOLS FOR AGRICULTURAL APPRENTICES.

Such schools on the Continent of Europe, in Ireland, and to a limited extent in England, pay particular attention to the training of pupils in manual dexterity and familiarity with the ordinary operations of farm work, such as ploughing, seeding, stacking, threshing, etc. The report on the Agricultural Apprentices' School at Clonakilty, in Ireland, gives as full information as may be necessary in this connection.

Only in the portions of Canada where settlement is comparatively new, are Farm Schools for the purpose of teaching the ordinary farming operations necessary. In the older districts, before a pupil is admitted to the County or District Agricultural School, he should have spent long enough at practical farm work to have learned all the operations thoroughly. At the same time it is

to be remembered that the actual practice of farm work in many parts of Canada is greatly below the standard of ordinary practice in England, Scotland, Germany, France and Denmark. The remedy for this state of affairs can only be gradual and comparatively slow. It may perhaps best be brought about through the co-ordinated Farming-Projects in connection with the Intermediate Rural Schools and the Rural High Schools. The influence and instruction of the Travelling Instructors would doubtless also have a marked effect on the skill and effectiveness with which the farm work is done.

FARM SCHOOLS.

The proper place at which to learn farming is a farm, managed as a business concern to provide a living and competence for the owner or worker. Farm Schools, where young men would learn how to do the work of farming and the methods of management, would be advantageous for people who have come to Canada from other countries without any experience of farm work under conditions similar to those of Canada or with implements and tools like those used in Canada. Particularly in the districts which are being settled by those who come from countries whose climatic or soil conditions and farming methods are different from those of Canada, it would be advantageous if a farm such as an "Illustration Farm" could be designated to receive such people for short courses, lasting from a week at a time up to a longer period, according to their needs.

The Commission recommends for such districts an Illustration Farm on a plan somewhat similar to those arranged for by the Committee on Lands of the Commission of Conservation. It might be the headquarters of a Travelling Instructor. To supplement the information and advice which such an Instructor could give on their own farms, he could meet the newcomers in groups from time to time at the Illustration Farm to give illustration and demonstration of the operations and methods of farming suitable to the district and to the resources of those who are settling in it. The waste of time which often occurs, the loss of crop which sometimes ensues, and the disappointment for a period of one or more years which frequently comes to the beginner, might be in a large measure prevented. Whatever would accomplish that would be of economic advantage to the whole community, not merely from the immediate saving and prevention of loss, but from the ability, knowledge and spirit resultant in these new settlers. The benefit would be to the individuals themselves, to their community, and to the business and transportation interests.

SECTION 11: AGRICULTURAL COLLEGES.

The Agricultural Colleges in Europe do not differ from Canadian Agricultural Colleges in such a way as to make it necessary or useful to give outlines of their courses in detail. One outstanding difference inheres in the fact that the Canadian Agricultural Colleges have professedly aimed to educate young men

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to go back to the farms to carry on farming there. They claim credit for the extent to which they have accomplished that. On the other hand, the Agricultural Colleges of Europe definitely profess to train young men for professional service in connection with agricultural and rural life.

It appears to the Commission that the time has arrived when a similar aim and course should be followed at the Agricultural Colleges in Canada. The need for capable and thoroughly trained men is already so great that the present capacity of the Agricultural Colleges would not suffice to meet it for several years to come.

TO TRAIN PUBLIC SERVANTS.

To meet that need, it appears to the Commission that the Agricultural Colleges maintained by public funds should devote themselves chiefly to the education of those who would serve the rural community. Under present conditions it does not seem probable that any large percentage of the working farmers can be spared from their occupations or can have opportunity to take a full course at an Agricultural College. The helpfulness of the Agricultural College can be carried to every community through the labors, knowledge and character of men and women who are trained at the College for professional service; and it can best serve the rural population through the education of such men and women.

The training and the education of the practical working farmer should be provided for in the Elementary School, the Intermediate Rural Classes, the Rural High School, the County Agricultural School, and by short courses at district centres, all of which should be easily accessible to him. The advantage to the practical working farmer who can take a full course at an Agricultural College will be largely of a personal character for his own benefit.

This is all in line with the systems of Industrial and Technical Education for industrial and technical workers in Germany and other countries. The working mechanic and also the foreman, in the workshop or factory, receive their education at the Continuation Schools, and at the Lower and Middle Technical Schools. Only those who are to become foremost leaders and directors of industry in a large way, and those who are to teach, take the full course in a Technical College.

This is also in accord with the methods followed in Denmark and Germany for the education of farmers and rural communities.

TRAINING AGRICULTURAL TEACHERS IN GERMANY.

In Germany the training of teachers is recognized as essential for every order of instruction. The teacher of any practical branch must add to his professional or trade experience training in the art of teaching before he can secure recognition. The staff of itinerant lecturers maintained by the Agricultural Department in the interests of the farmers must have in addition to the usual qualifications, ability as popular speakers and readiness in discussion. The official regulations in regard to the preparation of teachers of agriculture are very explicit.

There are in Prussia two well known pedagogical seminaries for training teachers for this work—one at Hildesheim and the other at Weilburg. The latest official regulations on the subject provide that after April 1, 1911 no one shall be appointed as Professor of Agriculture, even in the Elementary Schools of Agriculture receiving State grants, unless he possesses certificates proving (1) that he has at least the general education required for those who are admitted to the military service of one year; (2) that he has had four years of practical work in agriculture under proper supervision; (3) that he has pursued for three years the higher course in agricultural studies in a University or in a Technical High School, and that he has passed the examination for a Professor of Agriculture; (4) that he has successfully followed a professional course in a Normal School.

TRAINING EXPERTS AND LEADERS IN IRELAND.

Frequent reference has been made to the policy and methods followed in Ireland. The plan of the Irish Department of Agriculture and Technical Instruction for training leaders is recommended to Canadian authorities. The Irish Department had the advantage of being created after a thorough and intimate study of the systems of the leading European countries. It was organized in such a way as to enable it to give effect to the best that had been learned from these countries. After some 12 years of experience, with a reasonably free hand given to eminently capable, highly trained, public-spirited and unselfish officials in developing its work, what is found in the Department in Ireland now includes much of the best which the Commission found in Europe. It is not meant by this to intimate, or give rise to the inference, that the educational attainments of the Irish people, in that brief period, bring them abreast of those in Germany, France and Denmark from whom they learned the lessons which they have put to such good account.

The plan of the Department whereby men are trained up through the Albert Agricultural College at Glasnevin and the Royal College of Science at Dublin is providing a supply of competent experts. The courses for women through the Munster Institute at Cork and the Central School of Domestic Economy at St. Kevin's Park, Dublin, furnish trained women teachers.

THE TRAINING OF INSTRUCTORS AND TEACHERS IN ENGLAND.

In England the authorities are active in planning for and providing for the further preparation of teachers of agricultural subjects. An official document of the Board of Education from which quotations have already been made says:

(i) *Agricultural Instructors.*

70. It is obvious that the provision of the scheme of rural education set out in the foregoing chapters depends upon an adequate supply of properly prepared teachers. First of all it is necessary to consider the supply of highly educated men who can act as the expert staffs of the Agricultural Institutes and as instructors in the Farm Schools. The difficulty of getting good men

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for such posts is a very real one. This is partly because the salaries offered by County Education Authorities are too low to induce men to prepare themselves for county work or to accept county posts when better pay is offered for Indian and Colonial appointments, and partly because the means of preparation available are not in all cases suitable for the purpose. The preparation for the more important posts should be obtained at an Agricultural College or a University, and should include a thorough grounding in the sciences underlying agriculture, practical experience in the branch of agriculture which is to be followed, and practical instruction in science as applied to that branch of agriculture. With the recognition of nearly all the Agricultural Colleges as University departments, and with an increase in their financial resources, there is reason to believe that a sufficient supply of adequately prepared men can in future be provided, and it now rests with the County Education Authorities (1) to offer facilities to promising students by scholarships to prepare themselves as experts and (2) by offering adequate salaries to hold out prospects of sufficiently remunerative employment.

(ii) *Rural Science Masters.*

71. If work * * * is to be developed in rural Secondary Schools, science masters will be needed who possess a practical knowledge of biology in addition to chemistry and physics, together with such a knowledge of agriculture or horticulture as will enable them to give a rural bias to their teaching. Suitable teachers have been secured in several schools by the appointment of men who have taken their science course in the Agricultural Department of a University. In other schools, science masters who possessed no agricultural knowledge have attended vacation courses at the Agricultural Departments, such as the course held at Cambridge during the summer of 1909, nearly half of the students of which were teachers in Secondary Schools. It is to be hoped, on the one hand, that the Agricultural Departments, remembering that they must depend largely upon the rural Secondary Schools for a supply of well prepared students, will provide both appropriate courses for intending science masters and summer courses for existing science masters, and, on the other hand, that Local Education Authorities and Governors of rural Secondary Schools will provide facilities and encouragement to science masters to take advantage of these courses.

FINDINGS OF THE RURAL EDUCATION CONFERENCE.

More recently the Rural Education Conference issued a Report on the Qualification of Teachers of Rural Subjects. The chief findings of the Conference are in the concluding paragraph of the Report as follows:—

13. In our opinion there are several ways in which the difficulty in connection with increasing the supply of teachers properly qualified to give instruction in rural schools might gradually be overcome:—

(1) The Training College course might be extended for all students to at any rate three years so as to allow of their acquiring the special knowledge necessary in the third year.

This third year need not necessarily be consecutive with the first two years.

(2) Special courses in rural subjects might be included in the curriculum for bursars and other intending teachers at rural Secondary Schools. In many cases such courses would be equally beneficial to all the pupils in the school.

(3) Local Education Authorities might be encouraged to provide systematic courses of instruction of a suitable character through which as many as possible of the teachers in rural Elementary Schools might be passed. Such courses would be held most conveniently, under the supervision of the county staff teachers referred to in the first Report of the Conference, on Saturdays, lasting over a period of two years, and in conjunction with these Saturday courses, further courses of two or three months' duration might be arranged at an Agricultural or Horticultural College or Farm School, the places of the teachers being filled temporarily while they were undergoing this further training.

(4) The pay of teachers in rural schools might be brought up to a level more nearly approaching that which obtains in the towns, and greater opportunities of promotion than they at present enjoy might be given to them. If this were not feasible, special remuneration should be given by Local Education Authorities to specially qualified rural teachers.

14. From the evidence which we have received we are convinced that it is not at present possible for county Education Authorities generally to undertake the responsibilities referred to above to any large extent for financial reasons, and because of the feeling prevalent among ratepayers that the training of teachers is a national question rather than one for each county to undertake for itself.

We therefore recommend—

- (1) That the length of the ordinary Training College course should be extended by one year, during which teachers would be able to specialize. This third year need not necessarily be consecutive with the first two years, and those teachers who desire to take up rural subjects during this period might be allowed to do so at University or Agricultural or Horticultural Colleges or Farm Institutes.
- (2) That all county Local Education Authorities should be required to provide for their existing teachers, or for such future teachers as have not attended a Training College Evening, Saturday or Vacation classes, and, in connection with these classes, courses of two or three months' duration at an Agricultural or Horticultural College or Farm Institute where the teachers would receive free instruction and their ordinary pay.
- (3) That Local Education Authorities should encourage rural teachers, both head teachers and assistants, by assimilating their pay more nearly to that obtaining in the towns.
- (4) That the curriculum of rural Secondary Schools should be modified to include special courses in rural subjects for bursars and other intending rural teachers.
- (5) That increased grants should be given by the Treasury to county Local Educational Authorities to enable them to carry out the suggestions which we have made in (2) and (3) of this paragraph.

PREPARATION OF TEACHERS OF AGRICULTURE IN AGRICULTURAL COLLEGES IN THE UNITED STATES.

The Commissioner of Education in his Report for 1911 says:—

The introduction of instruction in agriculture into the school curriculum has created a greater demand for teachers with special training for the work than can at present be supplied. While agriculture as a high-school science is being rapidly rounded into pedagogical form, it is yet so far in the experimental stage of its development that teachers with special training are essential. Probably no factor has had more influence in retarding the introduction of instruction in this subject into the public schools than the lack of instructors properly qualified with training in both pedagogy and in technical and practical agriculture.

The majority of such teachers must be supplied by the State colleges of agriculture and mechanic arts. To encourage these institutions to prepare special teachers of agriculture Congress in the Nelson amendment to the appropriation bill for the Department of Agriculture approved March 4, 1907, providing further aid to the colleges of agriculture and mechanic arts established under the provisions of the land-grant Act of 1862 and receiving the benefits of the Act of August 30, 1890, added the proviso "that said colleges may use a portion of this money for providing courses for the special preparation of instructors for teaching the elements of agriculture and the mechanic arts." Under this Act each State is now receiving annually for the benefit of its college of agriculture and mechanic arts the sum of \$25,000.

"A special inquiry was made of these institutions by the Bureau of Education during the past summer to determine what each is doing to prepare special teachers of agriculture. There are 50 of these colleges, not including the separate institutions for colored students; 12 of them are offering no special courses for students preparing to teach, although many of their graduates with no preparation but their general college course and technical agriculture courses have become instructors in agriculture in secondary schools; 3 of these offer summer-school courses in agriculture for elementary teachers. 13 others, having already a department or school of education when the Act of Congress was passed, now allow students in the agricultural courses to elect certain courses in education. 10 others have added courses in psychology and general education, and 13 have added departments of agricultural education, which give courses in methods of teaching agriculture and in school agriculture as well as in general pedagogy. 9 offer special one or two year courses for teachers of agriculture, and 30 conduct summer schools offering courses in agriculture for elementary teachers. The departments of agricultural education in many cases are giving special aid to instructors in public schools teaching agriculture, and are also giving special instruction in agricultural pedagogy and agriculture for teachers in summer schools. Among the 17 institutions for colored students, Hampton Institute (Virginia) is the only one preparing special teachers of agriculture; 8 others require pupils in their normal course to take an elementary course in agriculture.

AN EXTENSION IN ONTARIO.

In August, 1912, a circular was issued by the Department of Education of Ontario, setting forth the recent provision made in that Province to increase

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the number of persons competent to serve as Specialists in Science and Agriculture. The first three paragraphs are as follows:—

COURSES AND EXAMINATIONS FOR THE DEGREE OF B.Sc. (AGR.) AND SPECIALISTS' CERTIFICATES IN SCIENCE AND AGRICULTURE.

Under the present scheme for the advancement of Agricultural Education, the County Representative of the Department of Agriculture is expected to teach Agriculture in the High and Continuation Schools and the Collegiate Institutes. The latter function, however, he is usually unable to perform satisfactorily, partly owing to the pressure and importance of his duties as representative, and partly to the difficulties connected with arranging for his classes in the time tables of the Schools. The experience of five years has shown that in order to secure for the subject of agriculture its due share of attention, the teacher of agriculture must be a regular member of the staff. For some years at any rate not all the time of such teacher would be taken up with classes in agriculture, and accordingly, at the request of the Minister of Education, the Universities of Toronto, Queen's and McMaster have established the new degree of Bachelor of Science in Agriculture [B.Sc. (Agr.)] the course for which covers four years, the first two being taken at the Universities and the last two at the Ontario Agricultural College, Guelph. These courses provide a good general education as well as a special knowledge of both science and agriculture. In order, also, to increase their knowledge of practical agriculture, candidates for the degree will be expected to work during the summer vacation between the third and fourth year's course, either on the College farm or on some other farm in the Province of Ontario which, in the opinion of the President of the College, is well managed. The conditions under which this work is to be done may be ascertained from the President. An outline of the courses as well as the regulations governing them, is given below; full details will be found in the Calendars of the College and the aforesaid Universities.

The degree B.Sc. (Agr.) the Department of Education will accept as the academic qualification for a Specialist's Certificate in both Science and Agriculture and for a Public School Inspector's Certificate. The Specialist's Certificate will be granted after a year's professional training at either of the Faculties of Education, and the holder will be qualified to teach both Science and Agriculture in a High or Continuation School or a Collegiate Institute. Under this new scheme, the County Representative will continue to discharge his duties as such, and will, in addition, conduct, under the School Board concerned, classes for farmers and farmers' sons throughout the county, while the duties of the holder of the new Specialist's Certificate will be confined to the regular Secondary School Classes.

With a view to furthering the success of this scheme and thereby improving the agricultural teaching in the schools, the Government will give, at the end of each of the two years taken at the Agricultural College, a scholarship of \$100 to each candidate for the degree who passes the final examinations of the year and is recommended therefor by the President of the College. Moreover, as soon as the new class of specialists is available, the Government will make liberal grants for the encouragement of Secondary School Classes in Agriculture, in the form of contributions to their maintenance and of additions to the teacher's salary. The aforesaid payments to teachers will, however carry with them an obligation on the teacher's part to teach for at least two years in the Province of Ontario; but, as in the case of similar grants made by the Department of Education, the return of a proportionate amount of the total will release the teacher from this obligation.

EXPERIMENTAL UNIONS AND STUDENTS' ASSOCIATIONS.

One of the means whereby the Agricultural College can continue to affect the education of the ex-students, and through them the progress of agriculture in the locality, is by keeping in touch with them. That may be done through Students' Associations and Experimental Unions, such as exist at the Ontario Agricultural College, and by other means. In the beginning, such Students' Associations require to be fostered by the College: after the ex-student body becomes numerous enough, the Students' Association can take care of its own affairs, and serve the College in advisory and other capacities in most helpful ways.

TRAVELLING SCHOLARSHIPS.

In France, Germany and Denmark it is the custom for sons of farmers to travel for information and to observe and learn the methods of the best farmers in different districts. Much is made of that means of instruction. In Denmark the Commission met an excursion of small farmers to the Husmand School at Ringsted. In this connection it is worth while to consider what has been done by the Royal Agricultural Society of Denmark as reported in Part III.

In Canada excursions to Agricultural Colleges and Experimental Farms have awakened much interest in the work of these institutions; but the time devoted to the visit as a rule is all too short to enable visitors to derive full educational benefit.

REAL SCARCITY OF TRAINED MEN.

At the present time the supply of competent men obtainable as Instructors in Agriculture is entirely inadequate to meet the demand. It is important that thoroughly trained men should be available. Men for this educational work need liberal education and practical experience of work similar to that of the department which they are to direct. Their general education should give them a good grounding in the natural sciences, particularly in their relation to the science and art of agriculture. They should have a good knowledge of technical and practical agriculture and farm practice, and have sound acquaintance with the important questions in economics and sociology, as applicable to rural communities. It is also important that they should have a good knowledge of the art of teaching and the underlying principles of it.

It would seem necessary that the District Instructor should be a graduate of an Agricultural College or have the education of a Rural High School and be a graduate of the Science Department of an Arts College. The qualification for a teacher in a Rural High School or a County or District Agricultural School should not be less thorough and wide.

THE FIRST DUTY OF AGRICULTURAL COLLEGES.

When the Agricultural Colleges devote far more attention to the training of men and women who will become teachers, instructors and executive officers in connection with the organized system of agricultural education, it will not be necessary and it may not be advantageous for them to give up their 2-year courses and shorter courses.

The holding of short courses in each Agricultural College would continue to attract to the College large numbers who might not attend short courses in their own locality, and others for whom more advanced instruction could be provided at the headquarters.

It is not suggested that the Agricultural Colleges should drop any of the work they have been doing, but that each College should as a first duty direct its efforts to provide suitable courses for men and women required to fill

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the professional or official positions in connection with the further development of agriculture and agricultural education.

It would seem desirable that the 4-year courses should be specially for those who are being educated to render professional and continuous service in some public capacity; that the 2-year courses should qualify men and women for public work or to return to their farms and homes; that the 1-year courses should serve also those who are to return to their farms, and those who are to occupy public positions requiring long practical experience and acquaintance with farm management, in connection with county work and Illustration Farms.

SECTION 12: ORDER OF PROCEDURE.

RURAL ELEMENTARY SCHOOLS.

The question of prime importance is to get the teachers and courses of the Rural Elementary Schools faced aright. A good deal is being done in several Provinces, notably those which have Agricultural Colleges and provide special courses for rural teachers, but years of time will be required.

INTERMEDIATE AND RURAL HIGH SCHOOLS.

Early efforts should be made to establish or extend Intermediate Rural Classes (or Schools) and suitable Rural High Schools for pupils of both sexes from 13 years of age upwards.

RESIDENT OR TRAVELLING INSTRUCTORS.

Resident or Travelling County or District Instructors for Farming and Housekeeping should be provided as soon as is practicable. These Instructors would carry on work similar to much of what is undertaken at present by District Agricultural Representatives in Ontario and Quebec. The character and extent of the work would be adapted to the conditions of the district and should follow along the lines indicated in this Chapter. As soon as provision is made for Intermediate Rural Schools or Rural High Schools the Instructors should be associated with them; they would be particularly useful in helping to co-ordinate work on the farms with the work at the schools—the Agricultural Projects with the Educational Projects.

It would be an advantage, and it has almost become a necessity, for the County or District Instructor to have both suitable headquarters and an assisting staff adequate in numbers and efficient in qualifications.

As soon as the County or District Instructors could be associated with Illustration Farms, such as those arranged for by the Committee on Lands of the Commission of Conservation, it would be feasible to develop the various divisions of the work to much greater advantage. The Neighborhood Improvement Associations, which co-operate with the expert in the development of the Illustration Farms, would be good local bodies with which to work.

COUNTY AGRICULTURAL AND HOUSEKEEPING SCHOOLS.

Concurrently, a beginning should be made in the establishment of County or District Agricultural and Housekeeping Schools for young men and women from 17 years of age onwards. These would be somewhat similar in purpose and organization to the Danish Agricultural Schools and the County, District or State Agricultural Schools of the United States. Of these latter there are now more than 100, located in 17 different States which support them in whole or in part. They are distinct from the Agricultural Colleges. Two features distinguish these County or District Agricultural and Housekeeping Schools. The courses are short, each complete in itself and directly and specifically vocational for those who have already had a few years of experience in practical work; and the Schools are residential.

TRAINING OF EXPERTS.

Particularly from the action of Germany, France, England, Ireland and the United States, it is evident that the State as a whole regards a supply of thoroughly trained and competent teachers, specialists and leaders as a prime necessity for the promotion of agricultural education and the continuous betterment of agriculture and rural conditions.

While the Commission recognizes the excellence of the work being done at the several Agricultural Colleges in Canada at the present time, it is of opinion that extensions of their work are required to meet the growing needs of the agricultural population, and to be ready for the Provisions recommended for Education for Rural Communities. These extensions should be provided for at once in the following directions:—

1. Courses for the preparation of teachers qualified to carry on the science work and practical work in connection with Intermediate Rural Schools, Rural High Schools and County or District Agricultural Schools.
2. Courses for the purpose of preparing District Instructors who, in addition to technical and practical instruction in agricultural work, would receive training in the art of teaching and in the administration of affairs in rural communities.

ORGANIZATION OF LOCAL RURAL DEVELOPMENT BOARDS.

While these matters are in progress for the training of suitable men in sufficient numbers, at the Agricultural Colleges and elsewhere, for directive positions and as teachers and instructors, the organization of Local Rural Development Boards should be gone on with.

The first steps to be taken in a County, after the formation of a Local Rural Development Board, would be the making of a Census Survey of the numbers, ages and previous education of the young people needing further education. Early in its work of investigating and planning, the Local Development Board should obtain the advice of an expert or experts, preferably by means of personal conference after having gone over the ground.

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Then a statement of a proposed plan of the *Development Service* with the *Budget* could be sent on to the Provincial Authority. After that, experience, discussion, counsel and co-operation would make the path to follow plain and clear.

In this way Canada could bring into full operation a system of instruction for the whole rural population more complete than has been found in any one country, but not less thorough than is required by Canadian conditions.

CHAPTER X: EDUCATION FOR HOUSE-KEEPING OCCUPATIONS.

INTRODUCTORY.

It cannot be insisted upon too much that the occupations of the people have a far-reaching influence and effect on the quality of national life. The homes are the units on which civilization is based and out of which it grows. For every reason it is important that the girls and young women should be given a chance to develop vocational ability for housekeeping and homemaking.

The influence of the homes on the children is direct and continuous. Good homes minister to the welfare of the people by ensuring conditions under which the children may be healthy, wholesome and happy, and may be directed towards the exercise of right ambitions and aspirations. The effect of the homes on the level of the community is like the influence of the moon on the level of the sea. While individual achievement in any one direction may raise the person to the top, the crest of the wave is only a little above the general level ordained by gravitation and the tide. Good homes well-kept keep the tide of life high for the whole of the community and the State.

OTHER COUNTRIES ARE DOING MUCH.

In European countries much attention has been given in recent years to the question of the vocational education of woman, particularly for house-keeping and homemaking.

In England and Scotland, lessons in domestic subjects are provided for in elementary and secondary schools, and also in a number of special Polytechnics and Central Institutions, particularly for the training of teachers and leaders.

In Ireland much attention has been paid to this branch of vocational education by the Department of Agriculture and Technical Instruction. A Central Training School for Teachers in Domestic Economy subjects is maintained at St. Kevin's Park near Dublin for those who are to teach in urban communities. Those who are to teach in rural communities receive their training at the Munster Institute near Cork. The School for Girls at Loughglynn has some suggestions of value for rural communities in Canada.

In Denmark the provision of Schools of Housekeeping is more recent and less complete than in some other countries. The report of the School of Housekeeping near Askov contains information that might be useful to rural communities in Canada.

In France special courses are provided for girls from 11 and 12 years of age onwards; and the vocational education of girls toward housekeeping is everywhere emphasised.

A statement of some of the provisions in Germany is given in the report on that country. In the Kingdom of Prussia alone there are 50 Stationary

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Housekeeping Schools, 41 Itinerant Housekeeping Schools, and 3,781 Rural Continuation Schools where Housekeeping is taught.

In the elementary schools of Switzerland much care is taken to instruct the girls in sewing, knitting, darning, crocheting and mending. In the schools of some cantons from 6 to 8 hours per week are allotted to these branches during at least four years.

The United States has been regarded for many years as leading in the matter of the vocational education of women. If there be any respect in which a comparison of merits might be made to the credit of Europe, it is in regard to the training and qualification of those who are appointed as teachers. The European countries follow the practice of a prolonged and thorough training of those who are to teach, whereas in the United States, as in Canada, a good deal of importance is attached to resourcefulness and ability to make a good showing to the public.

In all countries voluntary associations of women have taken the lead in pressing for improvements and advances in the education of girls and women, and have thereby accomplished much. Their efforts have led to the maintenance of special classes and schools by public authorities. Most of the progress in Germany was due to the work of voluntary associations. Reference has been made in the report on Germany to the *Lette-Verein* and to the *Swabian Women's Society* and the *Women's Society of Frankfurt*.

The reports on all these matters, as learnt from the inquiry in the different countries are contained in Part III.

SECTION 1: THE NATIONAL COUNCIL OF WOMEN.

In Canada several associations of women, notably the National Council of Women, have been active in seeking for the inclusion of provision for the training of girls for housekeeping and home-making in the elementary and secondary schools. Mrs. Lyle appeared before the Commission at Hamilton, Ont., with others representing the Hamilton Local Council of Women. Her statements may be taken as representative of the attitude and desire of other women who testified before the Commission. Some of the main features of her evidence are as follows:—

In a city like Hamilton, if the early training of the schools is to be fruitful of good results, there should be classes where girls, who do not go to the Collegiate Institute and who are obliged to earn their living, could have further instruction.

A large proportion of the girls leave school at 14 years of age when their public school course is ended, many of them going into factories and stores. The Local Council of Women would like to see day and evening classes established in the Technical School whereby girls would be enabled to continue their studies until they were qualified to enter a higher class, such as a Housekeeper's Course embracing every phase of work necessary in a well-ordered home. These classes should be open to the children of the well-to-do equally with the girl who works to earn her living; the former needs to supplement her school training as well as the latter.

The present difficulties in Hamilton are two:—

1. Many of the pupils, owing to various circumstances, never enter the Collegiate Institute. They are thus prevented from receiving the instruction given there.

2. The lack of training in domestic subjects prevents them from going to Macdonald Institute or Macdonald College.

The Local Council of Women would like to see service in the home lifted to the same plane as the profession of nursing. The Council does not believe the home should continue to be the only place for which special training is not regarded as necessary.

DOMESTIC SERVICE IS LOOKED DOWN UPON.

As matters are at present the better class of intelligent girls prefer to go to work in stores or to become stenographers. The reasons they give for reluctance to work for wages in homes are varied, such as: "If I go to domestic service my friends will cut me"; "If in service you are looked down upon"; "I have a sister who is a trained nurse; she seems not only to keep her old friends but gains new ones, while I am regarded as an outsider."

If girls could pass the necessary examinations, and receive certificates showing their qualifications for service, as a nurse does, the Council thinks that in time it would revolutionize the household service question. At present high wages must be paid for inefficient work. The training in Domestic Science at little expense in their own town or city would produce a body of skilled workers who could command the highest wages.

To be able to engage skilled help by the day, week or month would be a blessing in many homes. In apartment houses, where there is often no bedroom accommodation for a maid, it would be invaluable. Under some such system, servants would be paid for the time they worked, and thus be enabled to take as many or as few hours for rest or holidays as they chose.

These points from Mrs. Lyle's statement are practically a summary of much that was brought before the Commission throughout Canada.

SECTION 2: WOMEN'S INSTITUTES.

IN BELGIUM.

Perhaps nowhere else have the Women's Institutes made more progress than in the Province of Ontario. Belgium has adopted a similar scheme. These Institutes have for their objects the social, economic and moral improvement of country life. They pay much heed to the acquisition of knowledge useful in regard to farm and home work, but their field of discussion is usually the advancement of the rural life of the community. The following is taken from a statement of the Women's Institutes in Belgium by Mr. R. B. Greig to the Board of Education of England:

"The Women's Institute is an association of farmers' wives, daughters and sisters, who meet periodically for the following among other purposes: to hear lectures, read papers, and study books on professional subjects, i.e., dairying, poultry keeping, gardening and all the minor rural industries, on cooking, laundry work and dressmaking; on household sanitation, home hygiene and ambulance

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methods: on the choice and care of furniture and pictures; on the rearing and education of children, and on any other means for the improvement of country life. The institutes have also a recreative side, and attention is given to music and literary subjects.

"The women work in association with the State Agronomist, the peripatetic classes, and the local schools of domestic economy. Assistance is given by the Government, under certain regulations, and the members pay a small subscription, but as the conferences and discussions are chiefly addressed by members, by teachers in State Institutions, and by others who give their services free, the expenses are not great.

"A National Committee co-ordinates all the Institutes, and one or two periodicals, notably *La Fermière*, have been created for, and are entirely devoted to, the service of the Institutes. There can be no doubt that these Institutes will exert an incalculable influence upon the social life of rural Belgium."

REPORT OF FIRST COURSE IN ONTARIO.

A beginning was made in the autumn of 1911 to provide a course of instruction in Household Subjects in connection with the Women's Institutes of Ontario. The report of the first Demonstration Lecture Course made by Mrs. C. H. Burns to the Department of Agriculture of Ontario gives information of such clearness and detail that it is presented here in full for the service of Women's Institutes when they begin to take up this matter in all the Provinces of Canada.

"If we refer back to the Convention of Women's Institutes of November 1910, those of us who were there, or who read the report of that Convention, will remember that the question was brought up at that Convention of the possibility of sending out trained teachers to give a series of lectures to the Women and young girls of Ontario, who are unable to leave home to avail themselves of a Domestic Science Course. At this Convention a committee was appointed to see what could be done towards accomplishing this object. This Committee met in May, 1911, to devise ways and means for carrying out this scheme, with the result that finally the Women's Institutes branch of the Ontario Department of Agriculture agreed to become responsible for the cost of a trial course.

DEMONSTRATION LECTURE COURSE.

"The Superintendent of Institutes engaged the writer, a graduate of Macdonald Institute, to give a Demonstration Lecture Course consisting of fifteen lessons to a group of adjacent Institutes:—Cayuga, Dunnville, Hagersville, Canfield and Caledonia in Haldimand County, and Delhi in Norfolk County.

This group of Institutes entered into a contract with the Department of Agriculture:

To guarantee twenty-five full course members at \$1.00 each.

To make the classes as large and as profitable as possible.

To make the work of the Demonstrator as valuable as possible by giving such assistance as would aid in making the work run smoothly; such as appoint-

ing an assistant who would become responsible for the opening of the room, do the local marketing, and assist in clearing up and washing the dishes.

The Department agreed to send to this group of Institutes a trained Domestic Science teacher to give a Demonstration Lecture Course in Cookery. This Course covered a period of fifteen weeks. Each Institute was given a class one day weekly until each Institute received the full fifteen lessons. The teacher instructed each local assistant in her duties, and furnished her with written directions one week in advance.

It was the teacher's duty, as well as privilege, to make an initial trip to each of the Institutes chosen, in order to organize classes, to make preliminary arrangements and to help each Institute select its lecture list.

The Superintendent suggested that where possible it would be well to have the High School girls take advantage of this Course. This plan was carried out in two towns, Dunnville and Caledonia, and necessitated having an evening class, as well as an afternoon class in both towns, because of the large attendance. This made in all eight Demonstration Lectures a week.

The classes were held in the afternoons at 2.30 or 3 o'clock, as best suited the convenience of the class, and lasted for an hour and a half to two hours. The evening classes began at 7.30.

Some of the Institutes thought it was advisable to issue course tickets to those taking the whole course of lessons. These tickets were shown on entering the hall. The secretary of each Institute, every week, regularly entered in a book the attendance of those taking the single lectures. In this way the total attendance at each class and the attendance of those taking the single lectures could be kept separate. The total membership of regular full course members from all of the six towns amounted to two hundred and forty-four (244) persons.

THE ATTENDANCE WAS GOOD.

"The total attendance at the lectures throughout the course amounted to three thousand, one hundred and fifty four (3,154).

The above figures do not include any of the High School girls.

The highest attendance at any place was seventy-six (76).

The average weekly attendance at classes was thirty-five (35).

The lowest attendance was ten (10). This was at a small Institute in the country, when the roads were in a very bad condition, and where most of the members had to drive some distance to the hall. The attendance throughout the course was most encouraging, for during the fall and winter we experienced so much bad weather and bad roads that it was difficult for many to attend the classes.

THE LOCAL MANAGEMENT.

"It will, I am sure, be of interest to you to know how these six Institutes managed their part of the work, and how they financed their share of the expenses.

Four of the Institutes were fortunate in that they were given the use of the "Town Hall" or Council Chamber in their respective towns. This kept

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down their expenses considerably. The additional expense, over and above rent for a hall, that each Institute would have to meet, was for fuel and supplies to cook with. In one small Institute, where the hall was given free of charge, the Institute members took turns in giving the supplies for each class, and any time the supplies exceeded the average amount called for, two members united in giving the supplies for that day. One member gave fire-wood as her share. In this way the cost of the Demonstration Lecture Course to the members of this Institute amounted to very little more than the price of their course tickets. This proved to be a very satisfactory arrangement for this small Institute, that had no prospect of having as large classes as the larger town; and the members said they did not feel the expense of giving the supplies in this way.

The Institutes in the larger towns, because of their larger classes, had no trouble whatever in financing their respective courses. All of these Institutes purchased their supplies, or the major portion of their supplies. Where it was possible or convenient a supply of staples was purchased, such as sugar, flour, flavoring, and any materials that would be used frequently throughout the course. By having these supplies on hand, the few extras supplies for each week were procured with less expenditure of time. Whenever the requisitions for supplies called for some trifling things, such as a few vegetables, spices, or three or four apples, some of the members donated these; and in this way the expenses were kept down to an average cost of from 60 to 65 cents per class per week.

As regards the assistant, the Institutes found it was not feasible to secure one assistant to undertake the necessary duties throughout the whole course. The Institutes arranged that two members should be appointed each week to procure the supplies for the following week, and to assist the Demonstrator in whatever way was necessary. The Demonstrator was always to leave, a week in advance, the list of supplies for the following week. This plan was most agreeable to all, and by the members so staunchly helping their presidents, no one member felt the responsibility a burden.

To carry a Demonstration through successfully and smoothly, it is necessary that the supplies are at the hall in time for the Demonstrator to arrange some simple preliminary work, and to feel assured that there is nothing forgotten.

CHARACTER OF THE LESSONS.

"The Demonstrator begins her lesson by giving a short talk on the subject to be demonstrated. She gives the food value of the food itself, the uses of such food in the diet, and shows its economic food value by comparing it with the more expensive foods of similar composition.

The next step is a practical demonstration of cooking this food or foods, with full directions and reasons given for each step in the process. For example: one day the lesson was on Milk, Soups, Puddings and combinations, with special relation to infant, children's, and invalid diet. Suitable dishes were prepared as would carry out this idea, as, two cream soups (cream of tomato and cream of pea soups); also a milk and bread pudding, and a caramel blanc mange pudding. The lighter invalid dishes were taken later in a lesson by itself.

The audience is always at liberty to ask the Demonstrator any questions that have a bearing on the work that is being demonstrated. The members of the classes gladly and freely availed themselves of this privilege, thus adding to their own knowledge and to the general interest of the lesson.

At the conclusion the dishes that have been prepared are passed, so that everyone who wishes may taste of them.

At the close of each class the Demonstrator announces the subject for the following week.

Much of the success of this Demonstration Lecture Course has been due to the hearty co-operation of the presidents and secretaries of these six Institutes, in assisting the Demonstrator to organize the classes, in securing as many regular members as possible, and in advertising the course of Demonstration Lectures to be given. Their support and enthusiasm did not stop when the classes were organized, but extended throughout the whole course.

The special instruction received by the lecturer from Miss M. U. Watson and her staff at Macdonald Institute, Guelph, by way of planning the course and preparing the details of each lecture, was responsible largely for the marked success attending our efforts." (Mrs. Burns' Report ends).

EXTENSION IN ONTARIO.

This initial course was followed up and arrangements made for other courses in Ontario. At some points some of the High School class, or the senior girls of the Elementary School, receive domestic instruction. In that case arrangements are made with the Instructress to hold special classes for them. That is done without additional cost, except for meeting place and supplies. The Demonstration Lecture List for 1912-13 indicates rather than defines what might be undertaken to suit local needs. The following is the announcement by the Ontario Department of Agriculture:

DEMONSTRATION LECTURE LIST, 1912-13.

Each Institute concerned may select fifteen lectures from the following list.

If any Institute wishes to enlarge any one subject into two lectures in order to cover the ground more thoroughly, it may be so arranged.

The sequence of the lectures should be left to the lecturer to arrange. She will, however, defer to the wishes of the Institutes as far as the proper development of the whole series will permit.

The lecturer will place especial emphasis in all lectures upon the food value of the foodstuffs used, and upon the comparison of money value of the different foodstuffs, as related to food value.

REGULAR LIST.

- Lecture No. 1. Fruit—Typical methods of cooking; combinations; different ways of serving fresh fruit.
2. Vegetables—Fresh, starchy and dried.
 3. Milk—Soups, puddings and combinations, with especial relation to infant, child and invalid diet.
 4. Cereals and Cheese—Various methods of cooking; their high food value compared with other more expensive foods.
 5. Eggs—Correct methods of cooking; variations on methods; storage.
 6. Tender Meats—Roasting and broiling; the correct cuts; food value compared with other meat cuts and other foods.

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- Lecture No. 7. Tough Meat—Braised dishes, stews and soups.
 8. Substitutes for meat—Nuts, beans, fish.
 9. Baking-powder breads.
 10. Yeast Bread and Fancy Breads.
 11. Cake and little cakes.
 12. Puddings and Desserts.
 13. Salads—Preparation of the ingredients, dressings, etc.
 14. Poultry—Drawing, trussing, roasting; fricassee, etc.
 15. Invalid Cookery—Liquid diet, semi-solid, etc.

OPTIONAL LIST.

1. Vegetables—fresh, starchy and dried.
2. Made-over dishes.
3. Gelatin Dishes.
4. Hot weather Foods.
5. Breakfast Dishes.
6. Fireless Cookery.
7. Frozen Dishes.

The Department prefers to have the Institutes choose the Demonstration Lectures indicated in the "regular list." If, however, there is a strong preference for one or more of the topics given in the "optional list" in place of some of the "regular" subjects, they may be substituted.

HOME NURSING LECTURE LIST.

There is also a Home Nursing Lecture List for such Institutes as prefer to have those subjects dealt with. A list of those lectures is as follows:—

1. Sick Room—Sanitation, Ventilation, care, etc.
2. Bed-making for various forms of sickness.
3. The Bath.
4. Hot and Cold Applications.
5. The Administration of Food and Medicine.
6. Emergencies.
7. Bandaging.
8. Disinfectants, their use and abuse.

There is also a Sewing Course, which consists of 7 or 8 lessons in the making of Shirtwaists and Plain Sewing. The Institutes are not required to furnish supplies for either the Home Nursing or Sewing Courses. The charge for each is the same as for the longer course in Domestic Science.

SECTION 3: MISS WATSON'S SUGGESTIONS.

The Commission obtained information of real value regarding work by District or Travelling Instructresses and Short Courses by them, from "Conversation" with Miss Mary U. Watson, Director of Home Economics, Macdonald Institute, Guelph, Ont.

The following are the main points, arranged from that source:

ORGANIZATION.

In the Province of Ontario, a good arrangement would be to take a County as an area and make arrangements with five Women's Institutes to receive demonstration lessons or instruction once a week. At each of the five places,

arrangements could be made for the Itinerant Instructress to carry on the work in the Elementary School or High School with pupils who are ready for it. Such a course might continue for twenty weeks. Once a week would seem, for the women of the Women's Institutes, often enough. Other interests would prevent the women from attending more frequently, and the time between the demonstrations would give them the opportunity to think over what they had seen and heard, put some of it to the proof, and absorb it into their own methods of work.

A second group of five Centres within the County could be chosen for the second half of the year. In that way, one Travelling Instructress would provide demonstrations for 10 Women's Institutes and 10 Elementary rural or village schools.

Each place might with advantage receive a second course, also lasting 20 weeks.

ADVANTAGE OF PLANNING.

In providing courses for Women's Institutes, it would be advantageous to have a full synopsis or record of the information to be given during the illustration lesson. At the beginning of all such lessons for women it is desirable to give an outline of the plan which it is proposed to follow. This impresses the desirability of planning for the work of each day in advance. A general statement from the women's meetings is to the effect that planning the day's work in advance and carrying it through according to plan, in marketing as well as in inside management, saves time and brings good results.

TRAINING AND SALARY.

For Women's Institutes it is essential that the Instructress should have had practical experience in housekeeping. In addition to that, unless she were already a trained teacher, she would require a course of two years at such an institution as the Macdonald Institute. If she were already a trained teacher and had had practical experience in housekeeping, a course of one year would be enough. Such women could probably be obtained at a salary of \$1,000 per annum plus out-of-pocket expenses for travelling. A lower rate for the Maritime Provinces would be equivalent to a higher rate, than the salary mentioned, in the Western Provinces.

As the work would develop, such a Travelling Instructress might become a County Supervisor for Housekeeping as taught in the Elementary and High Schools.

PREPARATION OF TEACHERS.

Miss Watson laid emphasis on the essential difference in the character of the demonstration lessons to be given to the women who are already employed in housekeeping, and to the girl pupils in the schools. Chiefly for that reason, she did not think that one of the women, who attended only the demonstration

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course for 20 weeks, could afterwards conduct the work as a non-professional assistant to the teacher in charge of the Elementary School.

For Housekeeping work in Elementary Schools the ordinary teacher, who has come up through the classes in an Elementary School (with proper work and co-ordination of work in needlework and housework), could teach those branches in the Elementary School, but would not be so well qualified or properly qualified to carry on work in the branch dealing with foods.

The elementary teacher, after the 20 weeks' course at her school, might carry on the needlework and housework, but would not be qualified for the work on foods and cooking. After a time a headquarters in the County might be developed at which such teachers could receive supplementary training. Besides, one or more headquarters should be developed in the Province as centres for the training of teachers in Dressmaking and Millinery for small towns.

METHOD OF INSTRUCTION.

The "How" only should chiefly be given regarding foods and cooking in the Elementary Schools, from age of 11 or 12 to 15 years; the "Why" during the High School period. The preparation of foods and serving of meals should be in this branch the culmination of work in the public schools for girls. It is a good plan to begin with simple statements, simple problems and simple situations for school effort. A good plan is to make the conditions, as far as possible, such as to lead the pupils to discover things for themselves. That applies more to the children in schools than to the adults at the demonstration lessons. Experience has proven it to be advantageous and necessary to proceed with the work very slowly at first, and to make sure that the work to be done is planned for and undertaken in the best way for educational ends. A process of unlearning is difficult and long.

Miss Watson had found text-books for the pupils of public schools to be neither suitable nor useful. By the time the children come to the High School they should be trained how to use books. The using of a textbook does not train the pupil to use a book or books; it often has quite the opposite effect.

SIMPLE EQUIPMENT.

In the equipment for single Rural School Centres, kerosene or gasoline individual stoves may be used. The Macdonald Institute has the specification of an equipment, including covers for the desks, which costs about \$70 for 12 pupils. Children should be encouraged to practise on the home stove and in home work. Hitherto the main cost in fitting up housekeeping centres has been the cost of the special table and the plumbing work.

THE HOME AND THE SCHOOL.

One of the finest results from having housekeeping work in public schools is the way it keeps up the interest between the school and the home.

There would be great difficulties in making the homework of girls in this connection an integral part of school training on a plan similar to the Farming-Projects of the Massachusetts plan for Co-ordinated Agricultural Education. For pupils in or beyond the High School age, that might be feasible.

Regarding a law for compulsory attendance of girls at Continuation Classes, it would be difficult to get it passed in Ontario, but its effects, if passed and acted upon, would be wholly beneficial.

PHYSICAL CULTURE.

If the exercises are to be at all strenuous in mature pupils, the training should be begun while they are quite young. Otherwise the exercises for pupils from 15 to 18 years and upwards should rather be such as to give poise and grace. It is most desirable that the games and exercises should be arranged by a competent teacher, as they have an influence on the development of sets of muscles and powers. A good Physical Director would arrange for games for certain results on health and enjoyment. Much of the drill for girls in the schools at present is useless from want of plan and from want of energy in execution. Without energy on the part of the teacher and pupils, the result is about the same as that from a dawdling stroll compared with brisk walking in the open air.

CORRESPONDENCE-STUDY COURSES.

Correspondence-study Courses could be provided with very great benefit to women who are unable to attend a course of instruction under a teacher. (Report of Miss Watson's suggestions ends here.)

SECTION 4: SOME CONCLUSIONS.

ELEMENTARY SCHOOLS.

The Commission is of opinion that preparation for Housekeeping should be provided for in all the courses for girls from the age of 11 or 12 onwards. Such part of the courses would be in the nature of Pre-Vocational Education for Housekeeping. Such courses are at present provided in many of the Elementary Schools in all the Provinces of Canada. They are provided in the Supplementary Courses of the Public Schools in Scotland, at many of the Elementary Schools throughout England, and in France.

Two departures from the usual form of organization may be mentioned; in Aberdeen the girls devoted 3 weeks continuously, before they left the Elementary School, to practice and training in domestic subjects. Another example was a residential school maintained by the County Education Committee at Northampton, England. In this instance, girls in the rural Elementary Schools might win Scholarships. These entitled them to a course of 3 months practical training in the County residential School for Domestic Science. The whole cost

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to the County Education Committee, not including charges on capital account, was reported to amount to less than \$2 per week per pupil. The School had about 30 pupils in attendance. Other County Education authorities in England have similar centres.

SECONDARY SCHOOLS.

The Commission is of opinion that it is desirable to provide Secondary Education for girls with particular regard to instruction and training in the preparation and serving of foods, the preparation, cleansing and use of clothing, housekeeping including ventilation, heating, lighting and sanitary administration. This might be done at the Housekeeping Department of an urban High School or at a Rural High School, with some co-ordination between the home and school work.

CONTINUATION CLASSES.

The Commission is of opinion that Continuation Classes for young women, devoted to instruction and training for housekeeping occupations, should be provided in all cities and towns. Attendance at these, during at least one period per week, should be continued until 18 years of age, unless the girl is receiving some other form of education. These might be arranged for in connection with (a) the Public School System (b) a Technical Institute (c) or a separate school such as a Middle Housekeeping School.

MIDDLE HOUSEKEEPING CLASSES (OR SCHOOLS).

The Commission recommends that Classes be provided for:—

- (a) Housekeepers who can devote one or more periods per week for a term of 3 months.
- (b) Young girls who have left school and who desire training as houseworkers and home-helpers.
- (c) Women in domestic service or seeking to qualify for domestic service.
- (d) Women employed at industrial and business occupations during the day.

Courses for those who had had experience in housekeeping would be chiefly by demonstrations, instructions, lectures and reading. Particular attention should be given, as in the German schools, to the study of costs and values, to analysis and allotment of income to different classes of expenditure, and to simple book-keeping.

The courses for those who require it should provide enough practice in Cooking, Sewing, Millinery and Housekeeping to enable them to profit in a practical way by attendance.

For those to whom it was practicable, Housekeeping-Projects in the daily work of the home could with advantage form part of the school course.

This School might form part of a Middle Technical School; but it would appear desirable to aim for a separate institution under separate management.

In carrying on the work of the Schobl a good plan might be to arrange forenoons for mistresses in charge of their own homes, afternoons for young girls and for house servants and girls preparing for service, and evenings for those employed at industrial and business occupations during the day.

THE TRAINING OF HOUSE-WORKERS.

The Commission is of opinion that general provision should be made for the instruction and training of those who desire to qualify for service for wages in the homes of the people. Testimony was brought before the Commission from various quarters, to the effect that competent young women are unwilling to accept places as workers in homes because the terms "domestic", "hired girl" and "house servant" have come to be regarded as indicating a condition of social inferiority which they are unwilling to accept. It appears desirable in the interest of good citizenship to remove the prejudice which has thus been created, and at the same time to give the house-workers an opportunity for thorough qualification for their duties.

The Commission is of opinion that short courses of instruction and training in housework and housekeeping should be provided. These might be of from one to six months' duration. The pupil taking a course satisfactorily would upon examination be entitled to receive a certificate of competence as a "Home-helper" or "House-worker" of the first, second or third class.

Provision should be made in Continuation Housekeeping Classes to enable the "Home-helper" or "House-worker" who could not devote time continuously to such training, to cover the ground and obtain the certificate by devoting one or two half-days per week to the classes.

To meet the case of housekeepers who desire to obtain competent house-help for a portion of a day or week, or house-help which would not reside in the home of the employer, it would seem desirable to have a trial made as to whether that could be furnished in connection with a Middle Housekeeping School. If a residence were part of the institution, living accommodation might be provided at rates to cover the cost.

If a "Home-helper" or "House-worker" held a first-class certificate she should be entitled to remuneration adequate to her training and ability. Such workers would serve the community, in respect to housekeeping under normal conditions of health, in a manner somewhat similar to that of trained nurses in time of sickness. Whatever promises a remedy for present conditions in the supply of labor available as "Home-helpers" and "House-workers" is worthy of careful consideration and fair trial.

It is a trite saying that people are more moved by instincts, prejudice and fashion than by judgment. The harmful notion has spread and is spreading throughout Canada that the doing of housework, and serving as a home-helper for pay, is less appropriate for and worthy of young women than serving as office, shop or factory workers. To eradicate that should engage the efforts of women and men, who all are directly concerned with home-making and house-keeping.

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RESIDENT OR TRAVELLING DISTRICT INSTRUCTRESSES FOR HOUSEKEEPING.

The Commission recommends the employment of Instructresses to carry on for the housekeeping interests of rural districts work similar to that undertaken by the Resident or Travelling District Instructors for Farming.

1. As a beginning, a Travelling Instructress in Housekeeping might meet a class of women arranged for by a Women's Institute, or other similar organization in the locality, one half day per week for a term of 20 weeks.

The other half of the same day the Travelling Instructress might carry on work with the girls and teacher in the school (Elementary, Intermediate or High) of the locality.

2. They should be associated when necessary, in the capacity of co-ordinators, with the Housekeeping-Projects carried on at home by pupils attending the Intermediate Rural Schools and the Rural High School.

3. These Instructresses should provide demonstration lectures in Cooking and Housekeeping work, chiefly as a means of directing public attention towards channels along which systematic educational work could be conducted.

4. As soon as practicable, they should be associated with the Short Courses of a County or District School or a Middle Housekeeping School.

As soon as practicable, they should be associated with the work of a Neighborhood Improvement Association and an Illustration Farm for the locality, similar to those arranged for by the Committee on Lands of the Commission of Conservation.

It is important to bear in mind that there is an essential and fundamental difference between the kind of instruction and demonstration suitable for the women and that which would be advantageous to the girls in school.

After the first year or two more than one Instructress would be required for an ordinary county area.

TRAINING TEACHERS AND LEADERS.

The Commission is of opinion that advanced education for the purpose of training teachers, instructors and leaders to serve in professional capacities, should be provided in the Colleges of Household Science and Home Economics. Such Colleges, by means of short and long courses, would prepare the teachers and instructors for the work of Housekeeping Education in cities and towns, and also educate Travelling Instructresses required in connection with the adult population in rural communities. Such courses would be similar to those already provided at some of the Normal Schools, at Macdonald Institute in connection with the O.A.C., Guelph, Ont., and at Macdonald College, Que.

In this connection it would be worth looking into the organization and courses of study at the Munster Institute, Cork, and the Central Training School of Domestic Economy at St. Kevin's Park, Dublin. There would be advantage from a study of the courses provided and the work done at the Margaret Morrison Carnegie School at Pittsburgh, Pa. Useful information would be found

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also from a study of the Domestic Science, Domestic Art and Domestic Industries School in connection with Teachers' College, New York. And the highest form of training, that in the Faculty of Household Science of the University of Toronto, should not be overlooked.

CHAPTER XI: INDUSTRIAL RESEARCH.

The field of Industrial Research may not be mapped off definitely from the area in which any seeker after knowledge labors for the service of mankind. No one can tell in advance what discovery of today in "Pure Science" may be "Applied Science" in everyday affairs of tomorrow.

In the course of its enquiries the Commission learned of and looked into the work of the Bureau of Industrial Research of the Universities of Pittsburgh, Pa., and Kansas under the Directorship of Dr. Robert K. Duncan, the originator of the plan which has been developed at these two institutions. The plan provides for the creation and maintenance of Industrial Fellowships in connection with the Universities. In brief the chief features of these Fellowships are:—

(1) The University provides the laboratory accommodation and selects the Investigators (the Researchers).

(2) The manufacturer, or other donor, indicates the specific subject or matter to be investigated and provides funds to support the Fellowship for the purpose of such investigation.

(3) Any discoveries become the property of the manufacturer (or the donor of the Fellowship) subject to certain conditions, contained in the agreement between the donor and the University, at the time the foundation of the Fellowship is accepted.

A copy of the agreement and a list of the Fellowships are given hereafter.

Without forgetting the immensities of realized values and unrealized possibilities of other arrangements and provisions for Research work, the Commission considers the Duncan plan to be so suitable and adaptable to Canadian conditions that it contents itself for the purpose of this Chapter with only the presentation of Dr. Duncan's scheme in somewhat full detail.

SUMMARY OF STATEMENT BY DR: ROBERT K. DUNCAN RE BUREAU OF INDUSTRIAL RESEARCH.*

At the University of Kansas in 1907 Dr. Duncan entered into negotiation with an eastern corporation for the establishment of some type of co-operative work by which the corporation, with its knowledge of the art and its facilities

*This statement is summarized from Dr. Duncan's book, "Some Chemical Problems of Today," published by Harper & Brothers, 1911; and contains extracts from a paper presented by Dr. Duncan at the meeting of the Section of Physics and Chemistry held October 3, 1912, and published in the Journal of the Franklin Institute, January, 1913. Dr. Duncan's "Conversations" with the Commission on the occasion of a visit to the Laboratories at the University of Pittsburgh and the observations of the Commission while there furnished the substance of the data, but not so completely as presented here.

for large-scale experimentation, might work hand-in-glove with the University of Kansas with its large laboratory, library, and consultative faculties, for the solution of some one important problem. The corporation concerned entered heartily into the idea, and they fought it out back and forth, they representing the corporations of the country and Dr. Duncan representing the Universities of the Republic, until finally they had together worked out what appeared to be a sane, practical scheme for the betterment of American industry and of the industrialists and University concerned, as well as for the advance of useful knowledge and the public good.

The scheme, which is now in operation in both the above Universities under Dr. Duncan's management, depends for its value and acceptance upon the mutually advantageous arrangement between manufacturing companies on the one hand, and the University on the other for the adequate solution of important manufacturing problems.

INEFFICIENCY AND ITS CAUSE.

The present condition of American manufacture is one of inefficiency. Every informed manufacturer, as well as most of those uninformed, knows that he has serious problems of such importance that in the conditions obtaining today their lack of solution means imminent loss for his individual instance of the industry. It may be safely said that wherever there is the smoke of a factory chimney, there are serious problems. Any intelligent chemist might very cheerfully accept a wager to go into any factory and within three days point out problems whose reasonable solution would make large differences in the dividends of the company; and these problems can be solved only by the chemist. Many a story might be told illustrating the amateurishness which pervades American manufacture, as differentiated from its expert office management.

The reasons for this inefficiency, as it appears in waste and lack of progressive factory practice, are clear and evident. Manufacturers of the past, though practically knowing nothing of applied science, forced their way to success through sheer fighting manhood and through the application of principles which they *did* understand. First among these principles was the creation of a tariff, which has injured the efficiency of American manufacture by shutting out the competition of the efficiency of foreign manufacture working through the application of modern knowledge; by hiding the importance of, and indeed by masking, the very presence of waste and non-progressive factory practice. To the difference between the cost of labor at home and abroad there has been added, among other things, the difference between scientific efficiency at home and abroad. In proof of this Dr. Duncan cites the procession of manufacturers before the Committee on Ways and Means, who in instance after instance, either consciously or unconsciously, claimed protection because of the waste and non-progressive character of his specific instance of the industry. Furthermore, many American manufacturers found it possible to rid themselves of the necessity for efficiency through the creation of combinations for the elimination of competition. Combined with these two methods of making financial progress

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at the expense of efficiency, there were large stores of raw material everywhere at hand, and the needs of a rapidly expanding and rather extravagant population which swallowed anything presented to it. Because of these reasons American manufacture flourished.

DISAPPEARANCE OF FOREGOING CONDITIONS.

Conditions now are rapidly changing. Every sensible man knows that the tariff on its present high pinnacle lies in an unstable equilibrium. Combinations for the elimination of competition are now illegal and ever more and more dangerous. The vast stores of raw material are now segregated into the holdings of a few men, who will release them only at an onerous and sometimes distressful rate. The increase of the population, though rapid, has not kept up with manufacturing production, and in certain lines manufacture is threatened with overproduction. In addition, economy in purchasing is taking the place of extravagance. Finally, there is a world-wide increase in living expenses, necessitating increase in salaries, in cost of materials and transportation rates, to such an extent that even in the immediate future success or failure in many manufacturing operations will depend on the extent to which the manufacturer can eliminate waste and increase the value of his product. Speaking frankly and advisedly, and within the knowledge of all, American manufacture is proceeding to a crisis from the successful issue of which only efficiency will count. Most manufacturers now understand this, some of them dimly and gropingly, yet actually.

APPLIED SCIENCE AND SHOP JEALOUSIES.

The American manufacturer, considering him in general terms, to which there are unmistakable exceptions, does not know how to proceed in order to gain this efficiency. For the main part he is ignorant of his own factory problems, at any rate of their full extent. He does not know how to go about the obtaining of adequate chemical aid, or how to choose the chemist, or the laboratory and library facilities with which this chemist should be provided; he submits the chemist to the jealousies of foremen, and by not granting him adequate power, to the stupidity and opposition of workmen; he does not know how to gauge his progress, and consequently subjects him to intolerable conditions of suspicion, intrigue and harassment. For the above reasons 90% of so-called research work carried on in factories is many times worse than loss, because failure places the finale on the possibility of that particular factory to understand the advantages of applied science.

MANUFACTURERS AS AMATEURS IN APPLIED SCIENCE.

Though the facts above stated are valid, it must not be inferred that because of them the American manufacturer is lacking in sense and judgment; for in shrewdness, acumen and energy, he may be compared with the representative manufacturers of any country on earth. His failure in successful factory practice is due, not to lack of ability, but rather to the fact that because of his

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many abilities he has so far managed to do without efficiency in his factory practice, so that when thrown suddenly into the necessity of this efficiency he finds himself outside his field of knowledge, and hence peculiarly liable to amateurishness and to the mistakes that follow it. The Keely motor and the idea of making gold from sea water are merely gross instances of the general amateurishness that pervades all manufacturing practice wherever it comes in contact with natural knowledge and modern science.

It may be said then, that the American manufacturer is inefficient sometimes to the extent of 50% of the value of his product; that he is confessedly so; and that today he knows he is inefficient, though he does not generally know this to the full extent; and that being an American, he is quick to learn and to act, and he desires help. This he can obtain by means of these Industrial Fellowships.

The practicability and value of these Fellowships come from the fact that they truly mirror the spirit of the times, which is steadily and inevitably doing away with the old age of destructive competition and placing in its stead an era of sympathetic co-operation; for men have discovered that they can do together what they could not do in conflict.

From the standpoint of the industrialist this arrangement is an immense privilege. The extraordinary facilities and powers which arise therefrom give him results which cannot be otherwise obtained, and the responsibility for obtaining these results is shifted from the officials of the company, who in most instances are wholly amateurs.

MUTUAL BENEFITS TO MANUFACTURERS, UNIVERSITIES AND PUBLIC.

When the young men who are conducting the experiments pass over to the corporations, the Universities do not lose interest in them or in the corporations; and the result is becoming apparent that through this arrangement industrialists may learn how to apply science to practical ends. Wholly unexpected and valuable relations have also developed as the number of Fellowships has increased, in the way in which these Fellows are able to help one another; and it seems that, as their number increases, this power of discreet mutual helpfulness increases in what may be called geometrical progression. It will be understood that personal integrity is a *sine qua non* to election into these Fellowships, and hence it is in a certain sense a fraternity.

With the increase in the number of Fellowships, there has appeared an increase of mutual helpfulness of the constituent corporations one to another, with striking results. Although these corporations do not know one another, as nearly all desire no publicity in the establishment of a Fellowship, yet the business of all of them passes through the office of the Director, and remarkable opportunities for helpfulness appear and are taken advantage of, some of these opportunities being for general helpfulness to the corporations quite outside of the actual direct business of the Fellowships.

It may be said, further, that what is called in chemistry the "catalytic influence" of these Fellowships is already beginning to be felt in regard to the industrialists of the country, and as the number increases, it may be reasonably

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predicted that their influence will leaven the whole loaf of American industry. As a matter of fact, they have proved to be a most efficient ferment.

The public is assured of benefit from every one of these investigations, the results of which will be published within reasonable time free to everyone to read and improve upon. While patents may be taken out at any time, as is the right of every human being, it is not generally understood as it should be, that the results of scientific investigation can reach the public only through the industrialists. Röntgen took out no patents on his discovery of the X-rays, but he did not give this discovery to the people, for it could only go into medical practice by the use of X-ray bulbs, and these were manufactured and improved by various corporations through whose factories they went to the people. These corporations, naturally and not at all improperly, placed on these X-ray bulbs all that the trade would bear. The fact that Röntgen took no money for his research simply added that much to the corporations concerned; his generosity did not make the slightest difference in what the people paid. But while industrialists may come and industrialists may go, every new significant fact hangs on forever as a permanent gift to the human race in its struggle for that unknown goal towards which it is proceeding.

A PROPER UNIVERSITY FUNCTION.

There can be not the slightest question that the establishment of these Fellowships is properly a University function, for the objects of every University worthy of the name are three:—(1) the adequate instruction of the young men and women who frequent its halls; (2) the creation of knowledge, both pure and applied; (3) the dissemination of knowledge, both pure and applied, and the rendering of service through such to its outside environment. This tripartite ideal is not to be questioned, nor is any one factor of the three any more important than the others. The University which does not devote itself to research, both pure and applied, is a dead limb on the tree of our civilization, for without research it can neither teach nor be of service. Researches carried on in accordance with these Fellowships result in new knowledge, both pure and applied. When the researches are ultimately published, it will be found that each and every one has increased the sum of human knowledge quite outside of practical ends, though the latter function does not render them any the less valuable.

New useful knowledge obtained mainly at the expense of a private corporation is surely as valuable to the human race as the academic knowledge obtained through the expenditure of millions on the part of private benevolence. Through these Fellowships a University fulfils its educational function. It can take the best brains and training of the whole country, and form them, through notable and useful achievement, into the highly specialized service which modern manufacture and the human needs of modern men require. No one who has met the young men constituting the staff of these industrial Fellowships would for an instant doubt that they would grow into men of power and influence for good. It must be remembered that they are trained men, fully half of them having already their degree of Doctor of Philosophy from the

great Universities, and that the University in giving them the opportunity of applying themselves to these highest and noblest ends is doing the highest University service.

FINANCIAL SUPPORT BY MANUFACTURERS.

Various corporations, mostly eastern, have within two years placed the sum of \$26,850 with the University of Kansas for the support of eleven Fellowships, as well as prizes, apparatus, travelling expenses of Fellows, etc. The amount placed with the University of Pittsburgh is \$39,700.

The investigations cover a great variety of subjects and substances, including laundering, baking, glue, soap, cement, glass-making, optical properties of glass, waste from fruit and petroleum, enamel for steel tanks, ozone, ductless glands of deep-sea mammals, abatement of smoke nuisance, composition flooring, natural gas, and a search for a new diastase.

The Fellowship on the Chemistry of Bread gives an interesting illustration of the work. The donors of Mr. H. A. Kohman's Fellowship, the National Association of Master Bakers, in recognition of the value of his other work in behalf of the association, at the termination of his Fellowship conferred upon him all proprietary rights in his process of standardizing the large-scale manufacture of salt-rising bread. Mr. Kohman discovered the efficient bacillus for its manufacture, isolated it, grew it in large quantities, and through its use has been able to turn out salt-rising bread of beautifully uniform quality at the rate of a thousand loaves a day for over a week. He has been offered large considerations for the right of this process, and on the basis of his general work and at the request of a certain corporation he has been appointed to a new Fellowship on bread at the University of Pittsburgh, yielding \$2,500 a year. In recognition of Mr. Kohman's work, the University of Kansas conferred upon him the degree of Ph. D.

COPY OF AGREEMENT.

AGREEMENT FOR INDUSTRIAL FELLOWSHIP No.....

For the purpose of promoting the increase of useful knowledge, the University of (Pittsburgh or Kansas) accepts from..... having head offices at.....the foundation of an Industrial Fellowship to be known as.....Fellowship.

It is mutually understood and agreed that the conditions governing this Fellowship shall be as follows:

The exclusive purpose of this Fellowship is..... to the furtherance of which the holder thereof shall give his whole time and attention, with the exception of three hours a week, which he shall give to instructional work in the University.

The Fellow shall be appointed by the Chancellor of the University and the Director of Industrial Research; he shall be provided with a separate laboratory

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and all supplies, reagents, etc., which could be reasonably expected to be in the possession of a large University, for the cost and payment of which his lectures shall be taken in lieu. The donating corporation, on its part, undertakes to co-operate with the University in this research, in providing him with its sympathy and, on prior consideration, with its factory facilities for large-scale experimentation. The Fellow shall work under the advice and direction of the Director of Industrial Research, and he shall forward periodically through the Director of Research reports of the progress of his work to.....

For the support of this Fellowship, which shall extend through a period of years,..... agrees to pay..... per year, payable annually in advance to the University of (Pittsburgh or Kansas), which sum shall be paid by the University in monthly instalments to the holder of the Fellowship.

Any and all discoveries made by the Fellow during the tenure of this Fellowship shall become the property of.....subject, however, to the payment by it to the Fellow of an additional consideration. This additional consideration to the Fellow shall depend upon the value of the services rendered, and shall not exceed..... The character of this additional consideration (whether royalties, stock, or what not), its amount, the time or times of its payment, shall be determined by the Board of Arbitration provided for herein. At any time during the tenure of this Fellowship the holder may, at the option of the donor, take out patents at the expense of the donor, on condition that at the time of making application therefor he assigns all his rights to the donor under the conditions of this Agreement.

At or before the expiration of the Fellowship, the business services of the Fellow may be secured by the donor, for a period of three years, on condition that the terms of such service are satisfactory to the parties at interest.

In the event of any disagreement between the donor and the holder of this Fellowship, it is understood and agreed that such disagreement shall be settled, in so far as the dispute relates to matters of fact, by a Board of Arbitration, consisting of a Representative of the University, a Representative of the Donor, and a Third Person whom these two shall select, that the decisions of this Board shall be binding upon the parties at issue, and that they shall obtain such decision before having recourse to the courts.

It is also understood and agreed that during the tenure of this Fellowship the holder may publish such results of his investigations as do not in the opinion of the donor injure his interests, and that, on the expiration of the Fellowship, the holder thereof shall have completed a comprehensive monograph on the subject of his research, containing what both he and others have been able to discover. A copy of this monograph shall be forwarded to..... and a copy shall be signed and placed in the archives of the University until the expiration of three years from that date, when the University shall be at liberty to publish it for the use and benefit of the public. In the event that, in the opinion of the company, publication three years after the termination of the Fellowship would unduly injure its interests, the corporation concerned is at liberty to appeal for an extension of time to the Board of

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Arbitration provided for herein, which, after consideration of this appeal, is at liberty to extend the time of publication to a period which, in its belief, conserves the interests of all concerned.

Dated: Signed on Behalf of the University of (Pittsburgh or Kansas)

Dated: Signed on Behalf of

EXTRACTS FROM DR. DUNCAN'S PAPER*.

A careful reading and re-reading of this agreement will make it evident that it relates to four different factors, and the degree to which it harmonizes with these different factors determines its acceptability and its chance of becoming a permanent relation.

These factors are:

- (a) The University.
- (b) The Company.
- (c) The Public.
- (d) The Researcher or Researchers engaged.

(a) *The University.*

The University is fulfilling its function in increasing the sum of knowledge; the fact that it is useful knowledge does not make it any the less valuable. Furthermore, the right to publish such knowledge is assured to the University under the agreement. An additional advantage lies in the large teaching force which, in accordance with the agreements, is provided for gratuitous instructional service in teaching chemistry. Still another advantage to the University lies in the relation of this system to its graduate school. Many of the "Fellows," as they are called, already hold graduate degrees; others, junior Fellows, hold Fellowships which are advisedly provided for young men who have just graduated from their college and who are men of promise. They are carefully chosen from the best Universities and constitute, naturally, a strong element in a graduate school.

(b) *The Company.*

From the standpoint of the company, the system has gone past the experimental stage and now unquestionably constitutes a privilege; it has been demonstrated over and over that, working in accordance with this system, it is possible to accomplish results that cannot otherwise be obtained. And this is but reasonable.

The University is provided with an equipment for experimentation immeasurably larger than that in the possession of any but the fewest factory laboratories.

Equally important are library facilities, without which no research can progress. The University, as a matter of course, is in possession of the stores of past and contemporary scientific literature; factories, on the contrary, with, let us say, half a dozen exceptions, are barren of such; factory sites are not placed with a view to library facilities, and yet the lack of such facilities is undoubtedly a contributing cause to the normal failure of factory research.

Still again, the University is in possession of large and important consultative facilities—mathematical, physical, engineering, bacteriological, etc.—and these are, of course, freely offered to the chemical researchers working under this system.

Finally, there is about university work, as differentiated from the factory, freedom from interference, correct judgments concerning progress, and an atmosphere sympathetic to research.

All these advantages, laboratory, library, consultative, and inspirational, together with the supervision and administration of these Fellowships, the University offers gratuitously to any company having important problems offering a reasonable chance of solution, and it undertakes, as well, to surround these researches with necessary secrecy.

(c) *The Public.*

The public is largely advantaged through this system. No discovery can go to the public as a useful actuality of achievement except through some company, or, to use what in these days

*"Industrial Fellowship: Five years of an Educational Industrial Experiment," by Robert Kennedy Duncan, Sc.D., in the Journal of the Franklin Institute, January, 1912.

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is an invidious term, some *corporation*. Corporations may be good or bad, or both, and the people of this country may be depended upon ultimately to take care that they are made subservient to the public good; but every useful and significant fact is a permanent good to the human race. Even today, if manufacturing waste were eliminated and full advantage were taken of significant contemporary discovery, shorter hours of labor would obtain and human need would vanish; in fact, it may be said that never until such a condition does obtain shall we pass out of our materialistic, neurasthenic civilization.

(d) *The Researchers.*

For the Fellows, the young men engaged in these researches, the opportunities are unique. If they do not already possess their Ph.D., they may proceed for it in the University, using as their dissertation such portion of their research as we may permit; they are provided with a stipend such as they can show that they deserve; they are given every opportunity for genuine achievement; and, what is more, a full recognition of such achievement; and finally, if they succeed in a practical way, they are assured through their bonus of a substantial, material reward.

A full list of these Fellowships as so far established in both universities, together with the subjects of Research, etc., is herewith appended.

UNIVERSITY OF KANSAS FELLOWSHIPS IN ORDER OF ACCEPTANCE BY UNIVERSITY OF KANSAS.

Fellowships marked * have been completed.

I. **Laundering.*

\$500 a year for 2 years.

Additional consideration 10 per cent. of net profits.

Fellow: Fred. Faragher, A.B.

January 29, 1907.

II. **Diastase.*

\$500 a year for 2 years (continued 3rd year).

10 per cent. of gross profits.

Fellow: Ralph C. Shuey, B.S. (U. of Kansas).

June 14, 1907.

III. **Bread.*

\$500 a year for 2 years.

Additional consideration.

Fellow: H. A. Kohman, A.B. (U. of Kansas).

April 27, 1908.

IV. **Casein.*

\$500 a year for 2 years.

10 per cent. of net profits.

Fellow: E. L. Tague, A.M.

April 27, 1908.

V. **Petroleum.*

\$1,000 a year for 2 years.

10 per cent. of net profits.

Fellow: F. W. Bushong, Ph.D.

April 27, 1908.

VI. **Enamel.*

\$1,300 a year for 2 years.

Fellows: A. J. Weith, B.S.

F. P. Brock, B.S.

September 10, 1908.

VII. *Glass.*

\$1,500 a year for 4 years.

10 per cent. of net profits.

Fellow: E. Ward Tillotson, Ph.D.

March 9, 1909. (Now in its fourth year).

VIII. **Cement.*

\$1,500 a year for 2 years.

Additional consideration.

Fellow: J. F. MacKey, Ph.D.

March 9, 1909.

IX. *Varnish.*

\$1,500 1st year; \$2,700 2nd year; \$3,900 3rd year.

Additional consideration.

Fellow: 1st year, L. V. Redman, Ph.D.

2nd year, L. V. Redman, Ph.D., Senior Fellow,

A. J. Weith, B.S.

F. P. Brock, B.S.

November 10, 1909. (Now in its fourth year.)

X. **Borax.*

\$750 a year for 2 years.

Fellow B. C. Frichot, B.S.

November 29, 1909.

XI. **Ductless Glands of Deep-sea Mammals.*

\$1000 a year for 2 years.

Additional consideration.

Fellow: E. R. Weidlein, A.B.

March 1, 1910.

XII. **Vegetable Ivory.*

\$2,750 a year for 2 years.

\$2,000 bonus.

Fellow: J. P. Trickey, A.B. (New Hampshire College).

June 3, 1910.

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XIII. *Petroleum.*

\$2,750 a year for 2 years.

\$,000 bonus.

Fellows: F. W. Bushong, Ph. D. (Senior).

J. W. Humphreys, B.S.

April 26, 1911.

XIV. **Gilsonite.*

\$750 a year for one year.

\$2,000 bonus.

Fellow: W. E. Vawter, B.S. (U. of Kansas).

April 26, 1911.

XV. *Fats, Hardening of.*

\$1,300 a year for 2 years.

49 per cent interest.

Fellow: E. O. Rhodes (U. of Kansas).

Sept. 19, 1912.

XVI. *Leather-Scrap.*

\$1,200 a year for 2 years.

10 per cent interest.

Fellow: R. Phillips Rose, A.B. (U. of Ohio).

October 22, 1912.

XVII. *Copper.*

\$1,800 a year for 1 year, \$500 apparatus fund.

Additional consideration.

Fellow: E. R. Weidlein, A.M.

November 11, 1912.

XVIII. *Copper.*

\$1,000 a year for 1 year.

Additional consideration.

Fellow: G. A. Bragg, B.S. (U. of Kansas).

UNIVERSITY OF PITTSBURGH FELLOWSHIPS IN ORDER OF ACCEPTANCE BY
UNIVERSITY OF PITTSBURGH.I. *Baking.*

\$750 a year for 2 years.

Additional cash bonus of \$2,000.

Fellow: Wilbur A. Hobbs, A.B. (U. of Kansas).

November 30, 1910.

II. *Abatement of the Smoke Nuisance.*

\$12,000 first year; \$15,000 2nd year.

Additional consideration 49 per cent, collective interest.

Staff in Charge.

Fellows:—

R. C. Benner, Ph. D. (U. of Wis.) (Chief Fellow).
 W. W. Strong, Ph. D. (Johns Hopkins), Physicist.
 J. A. Beck, LL. B. (U. of Pittsburgh), Attorney.
 H. H. Kimball, Ph. D. (Geo. Wash. U.), Metereologist.
 A. B. Bellows, B.S. (Mass. Inst. of Tech.), Engineer.
 O. R. McBride, B.S. (Purdue U.) Engineer.
 A. F. Nesbit, B.S. (Mass. Inst. Tech.) Electrical Engineer.
 J. J. O'Connor, Jr., A.B. (Univ. of Pittsburgh), Economist.
 E. H. McClelland, Ph.B (Lafayette College), Bibliographer.
 J. F. Clevenger, M.S. (Ohio State U.), Botanist.
 C. H. Marcy, Bacteriologist.
 J. E. W. Wallin, Ph.D., Psychologist.

Advisory Staff.

Oskar Klotz, M.D., C.M. (McGill U.) Senior Fellow.
 E. W. Day, A.M., M.D.
 W. C. White, M.D.
 R. T. Miller, Jr., M.D.
 W. W. Blair, M.D.
 B. A. Cohoe, A.B., M.D.
 S. R. Haythorn, M.D.
 W. L. Holman, M.D.
 E. B. Lee, Architect, Senior Fellow.
 Richard Hooker, B.S.
 C. T. Ingham.
 Richard Kiehnel.
 Carlton Strong.
 K. K. Stevens, B.S.
 November 30, 1910; revised, June 24, 1911.

III. *On the Relation of the Pots to Glass in Glass-Making and the Elimination of "Strea."*

\$1,500 a year for 2 years. . . .

Additional cash bonus of \$2,000.

Fellow: Samuel R. Scholes, Ph.D. (Yale University).

January 25, 1911.

IV. *Baking* (Wholly Independent of but with Acquiescence of No. I).

\$4,750 a year for 2 years.

Additional consideration of \$10,000.

Fellows: Henry A. Kohman, Ph.D. (U. of Kansas), Senior Fellow.

Charles Hoffman, Ph.D. (Yale University).

Alfred E. Blake, A.B. (New Hampshire College).

January 25, 1911.

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V. *Glue.*

\$1,200 a year for 2 years.

Fellow: Ralph C. Shuey, B.S. (U. of Kansas).

February 3, 1911.

VI. *Soap.*

\$1,200 a year for 2 years.

Fellow: Paul R. Parmelee, B.S. (U. of Kansas).

February 3, 1911.

VII. *Utilization of Fruit Waste.*

\$1,000 a year for 2 years.

Additional consideration of \$10,000.

Fellow: F. Alexander McDermott (Geo. Wash. University).

May 12, 1911.

VIII. *Composition Flooring.*

\$1,500 a year for 2 years.

1 per cent of sales for 5 years.

Fellow: R. R. Shivley, B.S. (Okla. A. and M. College).

August 15, 1911.

IX. *Crude Petroleum.*

\$10,000 a year for 2 years.

Collective interest of 10 per cent.

Fellows: Benjamin T. Brooks, Ph.D. (U. of Göttingen),
Senior Fellow.

X. *Natural Gas.*

\$4,000 a year for 2 years.

5 per cent of industrial results.

Fellows: R. H. Brownlee, Ph.D. (University of Chicago).
Senior Fellow.

Roy Uhlinger, M.A. (U. of Pittsburgh).

September 22, 1911.

XI. *Cement.*

\$1,800 a year for 2 years.

\$10,000 additional consideration.

Fellow: J. F. MacKey, Ph.D. (University of Toronto).

September 22, 1911.

XII. *Foods, Problems Related to the Manufacture of.*

\$5,000 a year for 2 years.

\$10,000 additional consideration.

Fellows: Clarence C. Vogt, Ph.D. (Ohio State University).
Senior Fellow.

Harry P. Corliss, B.S. (New Hampshire College).

W. E. Vawter, B.S. (U. of Kansas).

May 20, 1912.

XIII. *Fats and Oils, Bleaching of.*

\$1,800 a year for 2 years.

Fellow: Leonard M. Liddle, Ph.D. (Yale University).

May 22, 1912.

XIV. *Effect of High Potential Electricity on Chemical Reaction.*

\$1,000 a year for 2 years; \$300 apparatus fund.

Additional consideration.

Fellow not yet appointed.

October 28, 1912.

XV. *Discovery of Methods of Coating Steel or other Metals with Copper or other metals.*

\$1,500 a year for 1 year; \$500 apparatus fund.

Additional consideration \$10,000.

Fellow: C. L. Perkins, B.S. (New Hampshire College).

December 4, 1912.

XVI. *Copper, Extraction of from its Ores and from Copper "Tailings."*

\$1,500 a year for 1 year.

Teaching Fellow: Howard D. Clayton, B.A. (Ohio State University).

December 1, 1912.

A BASIS OF PROGRESSIVE SUCCESS.

After the system had gotten well under way it became possible and advisable to establish Multiple Fellowships, as differentiated from Individual Fellowships. Multiple Fellowships employ the intensive services of several men under the immediate direction of a Senior Fellow, who is responsible for his juniors to the Director and his Associate. An Individual Fellowship relates to one Fellow only, who is responsible directly to the Associate Director, and through him, to the Director. Such Multiple Fellowships, for example, are K₉, K₁₃, P₂, P₄, P₉.

While the time has not yet arrived in any one case for the publication of results, it may be said that these results on the whole have been most gratifying; indeed, the system could not have survived, much less grown, except on the basis of progressive success. Quite apart from industrial results involving temporary secrecy, it has been found possible from time to time to publish papers of academic interest; such, for example, are Tillotson's papers on the "Surface Tension of Molten Glass," Weidlein's work on "Adrenalin," or Bushong's paper on "Iso-naphthenic Acids."

From the industrialists themselves we have received a generous, broadminded trust and co-operation and the donation of many thousands of dollars' worth of apparatus in recognition of our progress.

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The Fellows engaged in these researches, while they have been drawn from many different Universities and other sources, have shown a complete understanding of the high trust which they hold and have developed a spirit of mutual helpfulness and an *esprit de corps* that is invariably a subject of favorable comment from visiting colleagues.

During the five years of actual development that this scheme has undergone, any inherent weakness must surely have appeared. It is most gratifying, then, at the conclusion of this paper, to state that none of us engaged in this work is aware of any such weakness. We look forward with confidence to the ultimate establishment of this system of Industrial Fellowships as a permanent relation between Industry and Learning.

CHAPTER XII : VOCATIONAL GUIDANCE.

INTRODUCTORY.

In the administration of education, as planned to make the schools more effective in preparing the pupils for their vocations, organized efforts have been introduced for the purpose of guiding them in respect to occupation. Stress is laid upon the desirability of impressing them with a sense of the importance and dignity of work of all kinds as the foundation of individual and social welfare. Efforts are made, in many of the leading centres, to furnish information regarding trades and occupations and to give the pupils such assistance as may be furnished by a Public Body towards preparing them for such places and afterwards helping them to obtain suitable situations.

Vocational Guidance does not mean only helping boys and girls to find work, that is work of any kind. It does mean helping them to find the kind of work which they are best fitted by nature and training to do well. It does not mean choosing vocations for them. It does mean bringing to bear on the choice of a vocation organized information and organized common sense. Boys and girls choose occupations often from the ease by which fairly good wages can be obtained, without regard to whether the occupation leads towards satisfactory employment in adult life.

The body politic or society gains hardly anything by the labour of thousands of its children at the most important period of their growth and development, mainly because they are not guided into the occupations for which they are best fitted. In cases like this the employer is often as great a loser as the boy or girl who works for him. Discontent with the job, more than the wages from it, will make a boy skip from one place to another. That leads to the destruction of the sense of responsibility and the loss of any habit of persevering application from a sense of duty.

MUCH CO-OPERATION IS NECESSARY.

The co-operation between the teachers in the Elementary Schools when the children leave them, and those in charge of the Continuation Schools is desirable. It seems equally desirable that there should be some definite arrangement or connection between the Day School and the Continuation School on the one hand, and the trades and industries on the other.

The content of the Courses of Study and the kind of work done in the Elementary Schools during the final two years have a good deal to do with shaping the preferences of pupils, and directing their tastes and ambitions.

Attendance at Continuation Classes enables the School Authorities to co-operate with parents and employers toward discovering the aptitudes and abilities

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of the pupils. An indication is thus obtained of the occupations for which they are best fitted, and they can be helped to get a start in them.

In this connection the reports of Labor Unions and Trade Organizations help to prevent an excessive number of young people taking Industrial Training or Technical Education for particular industries, where opportunities for employment are already limited.

In cities in England and Scotland the work of Vocational Guidance is carried on by the School Authorities in co-operation with the juvenile branch of the Employment Bureau; though the administration of these two public services is in other respects distinct and separate.

Because of the comparative newness, in Canada, of public activity in this connection, extended reports are hereafter presented indicating what is done in one place in the United Kingdom, two places in the United States and one place in Canada. Attention is also called to the remarkably effective work being done in a similar connection at Halifax, England. That reveals notable success in securing attendance at Continuation Classes of boys and girls who have left the Day Elementary School.

Necessarily in reporting on such a matter the material presented is taken from official or other authoritative sources. That regarding Edinburgh is presented first and is taken from one of the most excellent reports by Mr. McNally, Organizer of Continuation Classes, the official who is more directly responsible than any other for the work of the Educational Information and Employment Bureau.

SECTION I: EDINBURGH EDUCATIONAL INFORMATION AND EMPLOYMENT BUREAU.

The Education (Scotland) Act, 1908, which became operative on 1st January, 1909, empowered School Boards to maintain or combine with other bodies to maintain "any agency for collecting and distributing information as to employments open to children on leaving school" (Section 3, subsection 5). Thus it became possible for School Boards to use, in their discretion, moneys from the School Fund for this important purpose, and the Scotch Education Department have in two circulars, dated 27th August 1909 and 10th August 1910 respectively, pressed upon all the Scottish Boards the advisability of taking action. No special grant of money was, however, allotted for such purposes. It should be noted that the Act refers to information as to employments. The phrase might or might not be held to cover the detailed work of registration for specific vacancies.

The opening of the Edinburgh Bureau, which had been deferred until the Education (Scotland) Act came into force, took place in September 1909. The work of organizing and superintending the Bureau was entrusted to the Organizer of Continuation Classes, who had been for three years in close touch with employers in the city. It was felt that the further education of adolescents is

closely related to their employment, and that the operations of the Bureau, if properly directed, would exercise a strengthening effect on the link between the Day School and the Continuation Classes. This belief has been amply justified by the distinct increase in the number who proceed direct from the Day School to the Continuation Classes.

THE FUNCTIONS OF THE BUREAU.

The functions of a juvenile employment organization are briefly as follows:—

1. Advising juveniles as to the pursuits for which they are by ability, taste, character and education suited.
2. Informing juveniles as to the opportunities which exist in the various occupations.
3. Collecting and promulgating general information in regard to industrial conditions.
4. Registration, *i.e.* bringing into contact the employer, with a specific position to offer, and the juvenile suited for and desiring such a position.
5. The supervision, in certain cases, of the juvenile after he has obtained employment, so that he is induced to take advantage of all educational facilities pertinent to his work, and is advised as to the various steps in his industrial career.
6. Keeping the system of 'further education' in real touch with the industrial needs of the locality.

EDUCATIONAL CENSUS.

In the summer of 1910 an Educational Census was taken of the children and young persons in the City of Edinburgh with a view to determining two main points—(a) the actual number of young persons for whom Continuation Class arrangements should be made; (b) the nature of the industries of the various districts in which these young persons were then employed. The census was confined to houses of a rental of £30 per annum and less. It was ascertained that on 1st June, 1910, the number of young persons between 14 and 18 years of age was 14,988, and that of these 3,366, or 22.4 per cent, were in attendance at Day Schools; 3,948, or 26.6 per cent were attending Continuation Classes or other institutions for further study not including Day Schools; 7,674, or 51 per cent, were not taking advantage of any facilities for further study.

Calculated on the basis of the 1901 Census, the total number of young persons between 14 and 17 in Edinburgh in 1910 may be stated to be 19,094, the number receiving instruction during the day, 5,021, and the number attending Continuation Classes, Central Institutions and Private Schools, 5,758. Apparently then there were on 1st June, 1910, in round numbers, 8,000, or 43.5 per cent, of the total population between 14 and 17, who were not in attendance at either Day or Evening Classes. Almost 1,000 of these have since been enrolled in the Continuation Schools.

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There are 43 occupations in the city in which more than 50 workers between the ages of 14 and 18 are engaged. These important groups of industries will be carefully surveyed, with a view to showing to what extent provision has already been made in the Continuation Schools for giving instruction in the subjects which are directly related to them, and what further organization is required to meet the necessities of occupations still unprovided for. Valuable assistance in this connection will be given by the Sectional Committees of the Advisory Council.

CONTINUATION CLASSES COMMITTEE.

It was at first intended that the Bureau should be under the charge of a Standing Committee of the Board consisting of seven members, but on 21st April, 1909, the number of members was altered to five. Two years' actual experience of this arrangement has led the Board to see the necessity of conjoining the management of the Bureau and of the Continuation Classes. These two organizations deal with the same problem, the future of the child after he has left the Day School, and as the Continuation Classes are now expected to provide instruction having a direct bearing upon the crafts and industries of the district, the Board decided to form a special committee to deal with all matters relating to the conduct and control of the Bureau and the Continuation Classes.

ADVISORY COUNCIL—SECTIONAL COMMITTEES.

Associated with this Committee, which is called "The Continuation Classes Committee," there is an Advisory Council comprising representatives of public bodies, trade associations, employers and educational experts. It is the duty of the Advisory Council to give advice to the Board on all matters connected with the education required for the various trades and occupations in the city and on the conditions of employment. In order that the attention of each member may be concentrated on the industry with which he or she is connected, eighteen Sectional Committees of the Council have been formed to deal with the following subjects, viz.:—

- | | |
|---------------------------|-------------------------------|
| 1. Printing. | 10. Upholstery. |
| 2. Engineering. | 11. French Polishing. |
| 3. Brassfinishers' work. | 12. Baking and Confectionery. |
| 4. Tinsmiths' Work. | 13. Tailors' Work. |
| 5. Moulding. | 14. Plasterers' Work. |
| 6. Building Construction. | 15. Art. |
| 7. Plumbers' Work. | 16. English. |
| 8. Carpentry and Joinery. | 17. Commercial Subjects. |
| 9. Cabinetmaking. | 18. Domestic Subjects. |

THE DUTIES OF SECTIONAL COMMITTEES.

The duties of these Sectional Committees are as follows:—

- (a) To visit the particular classes with which they are chosen to deal.
- (b) To offer suggestions to the Board as to the equipment and schemes of work of those classes, the qualifications of teachers, and as to further means calculated to increase interest on the part of the workers concerned.
- (c) To advise as to the general working of the machinery for placing young persons in employment and as to the conditions obtaining in the various industries.
- (d) To make an annual report to the Board on all these matters.

The work of the Sectional Committees has been carried on with much earnestness, and valuable reports have been furnished to the Board. In this way the workshop, the counting-room, and the business establishment are brought into close contact with the school, and a definite practical bent is given to the instruction.

The following extracts are taken from the Report of the Continuation Classes Committee for the Session of 1910-11 :—

CO-OPERATION OF EMPLOYERS.

A special report on this all-important aspect of Continuation Class development has been prepared by the Organiser, and copies may be had by employers and education authorities on application to the School Board Offices. Attention may be directed to the following quotations as showing the response which employers make year after year to the Board's appeal for co-operation, and the variety of ways in which this co-operation grows:—

"All that has been said in previous reports as to the admirable spirit with which the Board's advances are received, and as to the readiness with which all reasonable requests are granted, still holds good. Through the activities of the Advisory Council of the Educational Information and Employment Department, employers are being brought into close personal touch with the work of the Continuation Classes, with the natural result, that, as their interest increases, their desire to develop the organisation grows, and they come to feel that they themselves are a most necessary part of the whole system."

"Within the last two years valuable help has been given by certain employers or their representatives in the drafting of schemes of work for new trade classes, and in the drawing up of the equipment and apparatus necessary for the proper teaching of these classes. In this way the Board have learned what can be taught in the trade classes to supplement without substituting what is done in the workshop."

"Further, in the work of the Sectional Committees of the Advisory Council employers have taken a prominent part, not only in visiting the classes but also in drawing up reports and suggestions to the Board. It is believed that these Sectional Committees will help to raise the whole standard of trade and technical instruction and will do much to remove the reproach that technical education in this country is neither up-to-date nor in line with the practical needs of the leading industries."

ADVERTISING.

A copy of the prospectus was, as formerly, sent to every pupil who had left the Day School during the previous session. The methods adopted during the four previous years for advertising the classes were continued. A thoroughly systematic and comprehensive visitation of employers was carried on by the Organiser, who, in the course of five weeks, made 808 calls and arranged for 91 meetings of work-people, nearly all of which were addressed by a Member of the Board as well as by the Organiser. In the course of his report on this work the Organiser states that each year all the chief employers are visited, and an effort is made to break fresh ground so far as the smaller shopkeepers and less important business people are concerned.

A detailed statement of the other methods adopted for advertising the classes is given in Appendix A of the Organiser's Report. The following steps taken for the first time in the past session may be specially mentioned, viz.:—(1) Evening meetings of leaving pupils and of their

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parents were addressed in the various schools by Members of the Board during the month of February. (2) A special circular letter was sent in September to all young persons between 14 and 18 years of age who, according to the census taken by the Board's officers in June 1910, had not previously enrolled in a Continuation Class. (3) The Head Teachers were asked to use every reasonable means for putting into effect in their respective districts the suggestions of the Scotch Education Department as set forth in Circulars 426 and 433. (4) Special circular letters were issued to the employers in those trades in connexion with which arrangements had been made for giving instruction for the first time.

INFORMATIONAL CARDS ARE PASSED AROUND.

The action is as follows:—Two months before the fixed date for leaving, each Headmaster fills up, in respect of all pupils who will leave, cards giving particulars of age, physical condition, ability, attainment and employment desired. The card also contains the opinion of the teacher as to the occupation for which the pupil is suited, notes as to proposed employment and further education, and spaces for general remarks. These cards are sent in to the Education Officer, who goes through them, making such summaries of educational and physical facts as may be desired. The cards are then passed on to the Exchange Officer, who files them in a cabinet. Smaller cards containing information as to age, record of attendance and behaviour, attainments in English, Arithmetic and Intelligence, length of time in Supplementary Course, and date of gaining Merit Certificate, are given to the pupils themselves when they leave School.

PARENTS ARE INVITED.

Meanwhile the fixed date approaches. The parents of all pupils leaving school are invited to an evening meeting at the school, with tea as an inducement. They are addressed by Members of the Board and by the teachers, and stress is laid on two points, viz. (a) that though their children are leaving school, further education of the kind appropriate to their work should be pursued; (b) that the children or their parents or both should call at the School Board Office some evening to receive such detailed advice as could not be given at a general meeting, and to register for employment. To these parents and also to those who do not come to the meetings a circular letter is sent. The meetings are attended by about 80 per cent of the parents concerned.

THE CANDIDATE IS INTERVIEWED.

The consequence is that large numbers of boys and girls come to the Board Office to follow up the card. The candidate first goes to the Exchange Officer's room, and receives his card stamped with reference number of the trade desired. He passes to the Education Officer's room and has a talk about his aims, his further education, and the suitability of the career for which he has expressed a preference. The parents are strongly advised to be present at this interview. The boy or girl then passes back to the Exchange Officer's room, and is definitely registered as a candidate for a particular kind of employment. The cards of

those who have made this personal application are separated from the others, and they receive priority in filling vacancies.

THE CONTACTS WITH EMPLOYERS.

The other side of the process now falls to be described. A circular letter is sent to all large employers in the City, informing them of the joint arrangement and requesting their co-operation. When the employer writes or telephones asking for candidates for a certain position, the register of personal applicants is first consulted (and in default of that the remainder of the register), and three or four of the most likely candidates are sent along to the employer for interview. Details of the request and also of the candidates are entered on the employer's card. Beyond the two sets (both of which are filed by the Exchange Officer, but are always open to the inspection of the Educational Officer), no other registers are kept. In the placing of pupils who have left school at either of the last fixed dates, the two officers act jointly, and when any difficulty arises as to those who left prior to those dates, they render each other whatever assistance they can.

Periodic renewal by the pupils is desirable if their names are to be kept on the personal application register.

Both the Educational Officer and the Exchange Officer make systematic visits to employers, the former to study industrial conditions, to enlist sympathy with and support for the further education of the employees, and to gain ideas for improving the Continuation Class system; the latter to bring to the employers' notice the facilities for securing suitable workers through the Exchange.

The nature and scope of the work which has been done by the Bureau since its opening on 6th September, 1909, as well as the extent to which its services have been utilised by employers, and those seeking information and advice as to further education, are fully brought out in the following statement issued by the Director in May, 1911, viz.:—

DIRECTOR'S STATEMENT REGARDING THE WORK.

	For month of Apr. 1911.	Total since opening (6th Sept. 1909.)
Number of pupils reported as leaving school at or since Summer Holidays, 1909, and concerning whom Bureau Cards have been received.....	14	5,670
Number of above who have stated their intention to enrol in Continuation Classes.....	6	3,266
Number of above 5,670 who have made personal application to the Bureau for employment.....	115	1,920
Number of above 1,920 who have entered on an occupation.....	140	1,209

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SECTION 2: VOCATIONAL GUIDANCE IN NEW YORK CITY.

A statement of the situation as it exists in the United States was presented in the Report of the Commissioner of Labor for 1910 on Industrial Education. It contains in greater detail than the notes of the Commission the information which was obtained in the two cities of New York and Boston. Consequently the following extracts are taken from it with grateful acknowledgment of their service.

Movements to promote vocational guidance have been undertaken in New York, Boston, Chicago, Cleveland, Philadelphia, Pittsburgh, St. Louis, and several other cities. In some cities, as New York, this work developed directly from the effort to place pupils who were ready to leave or obliged to leave the public schools. In others, as Boston, the features of guidance and counsel have from the first been prominent. The work in these two cities will be described at some length, as the newness of the subject and the present great interest in it seem to justify considerable detail.

As already stated, in New York this work began in an attempt to place pupils, from which effort other features of vocational guidance have developed. The High School Teachers' Association, through its students' aid committee, has taken the lead, its work in this direction being the outgrowth of the efforts of one teacher to help his students in choosing and securing work suited to their abilities and offering some prospect for the future. By 1908 in each day and evening High School there was a teacher or a committee of teachers to help students not only in deciding what vocation to choose, but in learning how to enter it. This work was purely voluntary on the part of the teachers and was carried on in addition to their regular duties.

OBJECTS OF STUDENTS' AID COMMITTEE.

At this time the Students' Aid Committee stated its objects as follows:—

In order that local committees and the teachers of the several schools may be better prepared to help pupils who leave school to fit themselves to their environment, the general Committee has planned to collect and make available information regarding—

(1) The necessary and prescribed qualifications for entering the skilled trades and learned professions in this city.

(2) The opportunities which are furnished to the young people of this city for acquiring these necessary qualifications, the time usually required, and the expense to the individual of qualifying himself.

(3) The restrictions which are placed by labor unions and professional bodies upon candidates who desire to enter the several skilled trades or professions.

(4) The average remuneration and the relative permanency of employment which a properly qualified person of either sex may expect in each of the skilled trades, the learned professions, and the commercial pursuits in which young people are usually employed.

In order to furnish this information in convenient form, the Committee undertook the preparation of a series of vocation leaflets, of which a dozen or more have appeared, with such titles as "Choosing a Career," of which there are two issues, one for boys and one for girls; "Openings for Boys in Machine Shops," and "The Vocational Adjustment of the Children of the Public Schools." These pamphlets are definite and practical. The two on choosing a career contain, in addition to concise information respecting the various pursuits, lists of books, reports, and magazine articles dealing with the different occupations, and lists of institutions giving special training to boys, to girls, or to both sexes, their location, requirements for entrance, etc.

These pamphlets are utilized throughout the High School course in directing the students' attention to the importance of choosing a vocation and preparing for it. From the beginning of the course every effort is made to rouse the students' interest in this matter. In four of the High Schools the pupils are definitely required to prepare regular plans for their future careers, including a study of their own capacities. In others, while not so definitely required, this is strongly urged. One of the plans outlined for such work is as follows:

SUGGESTIONS.

1. Let the student select an occupation, find some acquaintance engaged in that work, secure an interview, and write out the results of the interview as if for a newspaper. It will add to the interest if several members of the class have the same topic.

2. Let the student select an occupation for himself and plan for himself a career.

3. Let suitable questions for the debating society be so framed that pupils will discuss the opportunities in one line of work as against the opportunities in another; the requirements for success in one line, as against the requirements in another; the rewards of a profession as against the possible returns from a trade or a business.

4. Let the pupils select a line of work in which they are interested and write a review of one of the books of reference dealing with that occupation.

5. Let the student select some particular line in which he may be interested, and write an answer to some newspaper advertisement for help in that line.

A PLAN FOR A CAREER.

In writing a plan for a career a student should set forth:

- I. (a) His preferences; (b) the expressed wishes of his parents and friends in regard to his future.

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II. (a) His own reasons for his choice; (b) reasons in favor of or against his choice which were gleaned from books and magazine articles; (c) arguments in favor of or against his choice which were advanced by parents and friends who were consulted.

III. His personal characteristics by the aid of which he hopes to win success in his chosen vocation.

IV. The legal requirements for admission to the practice of the chosen trade or profession.

V. The schools to be attended to meet these requirements and the estimated time and expense involved in preparation.

VI. The possible rewards as stated in the authorities which were consulted.

As has been mentioned, this work has been carried on by many volunteer workers and by voluntary contributions from interested persons. By 1910 it was felt that it had sufficiently proved its usefulness to justify asking public support, and in its report for that year the Students' Aid Committee urged the formation of a central vocational bureau to take general charge and oversight. This has not yet been established, but an appropriation of \$250 was granted each High School for expenses connected with the work. The plan outlined by the committee is here given in full, as showing what it is felt should be the scope of such a bureau.

A CENTRAL VOCATIONAL BUREAU.

I. MANAGEMENT.

A. By an executive committee composed of representatives of associations of employers, labor unions, educational, social, and church workers, or of contributors.

B. By the school authorities under the direction of the Superintendent of Schools.

II. FUNCTIONS.

A. To offer advice and direction to young people of exceptional abilities who cannot receive the necessary assistance from the vocational teachers of their respective schools.

B. To serve as a means of communication between employers and the employment agencies or vocation teachers of the several schools and colleges from which students go out to work.

C. To collect information in regard to the opportunities for workers of ordinary ability and others of exceptional training; information concerning the personal and educational qualifications required for admission into different lines of work, and concerning the tests of efficiency which are set for promotion into the different grades of the same lines of work; and information regarding legal enactments and labor-union restrictions, this information to be gathered from:

1. Associations of employers.

2. Individual employers.
3. Statistical publications and Government reports.
4. Social workers.
5. Vocational records of workers of known capacities.

D. To make available through special publications, lectures, pamphlets, and conferences, for the use of students who are to choose a vocation and also for parents and social workers, general information in regard to the opportunities which are offered in the city, and to supply committees on courses of study or on syllabi of instruction with material which will enable them to increase the vocational content of the teaching material in the several subjects of study; and to supply the employment agencies of the several schools with specific and confidential information in regard to the terms and conditions of work with particular employers.

E. To keep a registry of students of the evening, trade, and continuation schools who are prepared, because of the completion of the prescribed courses of study, for employment in higher forms of service than those in which they are engaged.

F. To assist students of high capacity to complete advanced courses of study:

1. By means of scholarships.
2. Through part-time employment.
3. Through vacation employment.

EXAMPLES OF HOW IT WORKS.

The work of vocational guidance has been much more developed in the High Schools than elsewhere, but it is not confined to them. In Brooklyn a number of grade teachers are counselling and following up in precisely the same manner the pupils who must leave before even entering a High School. This work is so entirely individual, however, that it is difficult to say how extensive it is.

In 1910 one of the District Superintendents, on the lower east side of New York, employed a young woman who devotes all her time to finding positions suitable for untrained boys and girls who must leave school at 14. When a pupil who has fulfilled the school requirements says that he must go to work, he is sent to this agent who, by personal interviews with him and consultation with his teacher, tries to learn his tastes, ambitions, and capacity, and to secure for him a place adapted to his abilities and needs. The agent also visits employers, inspects the conditions under which children would have to work, learns the opportunities for advancement, considers the influence of the foreman or employer with whom a child would come in contact, etc. Unless the result of her investigations is satisfactory children are not sent.

SECTION 3: THE BOSTON PLAN.

The leading organization in Boston for vocational guidance is the Vocation Bureau, but either affiliated or working in the closest harmony with it are four other organizations—the Committee on Vocational Direction of the Boston School Board, the Boston Home and School Association, the Girls' Trade Education League, and the Women's Municipal League.

Of these the Committee on Vocational Direction was formed expressly that, in co-operation with the Vocation Bureau, it might begin the work of guidance within the schools, before the pupils leave even the grammar grades. The other three are independent organizations which carry on specific work along the lines of vocational guidance as only one among varied activities.

The Vocation Bureau was the pioneer in the field, and forms a kind of inspirational center for the later comers. During the last year the three independent organizations sent representatives, by invitation, to sit with the executive board of the Vocation Bureau, that the plans, both of the Bureau and the other bodies, might be discussed and carried out co-operatively and that all might be kept informed of the progress of each. It is likely that during the coming year a plan of even closer co-operation will be worked out. It is also likely that two at least, and possibly all, of the other bodies will remove their offices for vocation service so as to make a continuous suite of offices in connection with the Vocation Bureau. Owing to this close co-operation of all interested there has been very little, if any, duplication of effort and the field has been covered with unusual thoroughness.

THE VOCATION BUREAU.

The Vocation Bureau is an extension of the work of the late Prof. Frank Parsons, who, as educational director of the Civic Service House, organized in 1907 a bureau for the purpose of advising young men in their choice of a vocation. The present Bureau, organized June 19, 1909, represents a co-operative effort on the part of public-spirited men and women in the fields of labor, education, commerce, manufactures, and social work, to organize and put into operation a comprehensive plan of vocational advice and assistance for the children and young people of Boston. Its work is carried on by a director and an executive board of thirteen members; there is no fee nor charge of any kind for its services.

The organizers of the bureau believe that proper guidance at the critical period of adolescence will enable beginners to find themselves early and to make good in the work they are doing, and will, moreover, stimulate them to fit themselves for advancement. In return for this increased interest in their pursuit, manufacturers and business men are asked to co-operate in securing for their young employees the largest opportunities for progress in the work assigned them.

WHAT THE VOCATION BUREAU DOES.

The Bureau does not prescribe vocations, nor is it conducted as an employment office. Its chief service is in bringing together the best occupational information and in devising the best methods of applying such information in assisting the child and its parents to make an intelligent choice of a career. At the invitation of the Boston School Board the Bureau is co-operating with the schools in outlining methods of helping pupils choose their life work and prepare for it. It is also conducting a training school for teachers and school officials who have been appointed as vocational counselors by the school department.

The activities of the Vocation Bureau fall into four general groups:

1. The maintenance of an office, centrally located, for the collection and study of information concerning the various occupations of the community. When secured, this information is classified and made public in such a way as to help young people, teachers, and parents to understand what the occupations hold out, their advantages and disadvantages, and the conditions for efficiency and success in each.

2. To make clear the need of training and educational equipment for the desirable occupations, and by advice and co-operation to prolong the school period of young people, whether by day, evening, or part-time courses, and also to secure other educational opportunities when needed.

3. To organize personal vocational counseling both for those in school and for those already at work, in order to enable them to plan intelligently for their educational and vocational progress.

4. To furnish opportunities for consultation to people of all ages, who have personal problems concerning the trades, the professions, and academic or industrial pursuits.

The first centers about the acquisition and use of the material on which counsel is based, to secure which the Bureau has undertaken the investigation of occupations open to boys and young men. Professions, trades, and different kinds of business are included. There is no bias in the Bureau's plan in favor of industrial over non-industrial pursuits, all vocations being given equal attention in the collection and presentation of facts relating thereto, but the trades and manual occupations come in for a considerable share of study.

To make these researches the Bureau employs two expert investigators, who are expected to learn what an occupation is, its conditions and openings, what it demands of a boy, what it offers in pay and advancement, what opportunities are open for securing the specific training it requires, and what the general conditions of employment are as regards health and effect upon the life of the individual. This investigation is conducted by making personal visits to firms, shops, or factories, and by consultation with employers, superintendents, foremen, employees, and labor men, and also by the use of books dealing with occupations, and of trade periodicals.

Over 100 occupations have been thus investigated and the results carefully filed for use as a basis for vocational counsel. In addition, in occupations which seem adapted to such treatment, the facts gathered are worked up into a bulletin

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for the use of those interested either in choosing a vocation for themselves or helping others to make a choice. The bulletins are not meant to furnish strictly scientific or technical treatment of the occupations, but it is intended that the information they give shall be thoroughly reliable. To this end each bulletin is carefully scrutinized, by the persons furnishing the information on the investigation cards, by an economist, a labor union official, and others.*

*It has already been indicated that this Report *re* New York City and Boston is taken from the Report of the Commissioner of Labor of the United States, 1910. The extracts are not put in small type, as is the custom in this Report, only for the reason that they may be more easily read owing to their extent.

SECTION 4: VOCATIONAL GUIDANCE OF BOYS AT WINNIPEG.

The Winnipeg Industrial Bureau is a body of public-spirited men representing twenty business organizations of Winnipeg whose object is the development of opportunities in Winnipeg and Western Canada.

This Bureau has an Educational Committee, which has definitely taken in hand the vocational guidance of boys, by means of plain talks by leading men in each trade and profession. These talks are afterwards printed and distributed to the parents by means of the scholars.

The Lieutenant Governor is taking great interest, and the whole movement is one of the Bureau's activities, called into being as a result of trying to create a good environment and outlook for the children.

The Educational Committee has a fund of \$3,000 per year for paying expenses of bringing lecturers. The Trades Unions are taking an interest in the work and helping in the lecture work.

The talks are short, practical and inspiring, and deal with railway work, machinist trades, pattern making, lithographing, salesmanship, etc.

SUBJECTS OF TALKS BY CITIZENS.

Among the subjects presented to the Schools by these public-spirited citizens of Winnipeg are the following:—"The possibilities for Success in Railway Work," by Geo. Bury, Esq.; "The Lithographing Trade," by W. J. Bulman, Esq., of Bulman Bros. Ltd. Lithographers, Printers, etc., and President of the Winnipeg Industrial Bureau; "The Training of an Electrical Expert," by Professor E. P. Featherstonhaugh, of the University of Manitoba; "Machinist Trades," by R. R. Nield, Esq., Foreman of the C.P.R. Shops; "Pattern Making," by E. Stewart, Esq., Mechanical Superintendent Manitoba Bridge and Iron Works Ltd.; "Salesmanship," by A. L. Struthers, Esq., representative of the Business Science Club.

VOCATIONAL TRAINING.

The Committee has issued the Chart, shown on the following page which is hung in Public Schools, and used by Teachers, Vocational Counsellors, Parents' Associations and others interested in the Vocational Guidance of youth

WINNIPEG VOCATIONAL CHART.

TO ASSIST PUBLIC SCHOOL BOYS

- To select a trade or profession.
- To have a knowledge of each trade.
- To understand the value of efficiency.
- To understand the horror and irritation of the life of the inefficient.
- To realize that the basis of their future is the "know how" of to-day, and that the basis of that "know how" they are gaining at school.
- To specialize and not form the habit of changing trades for little financial gains, for time is going and they must not become men with five hungry senses and no available facility whatever.

We are having the leading men in each trade or profession visit each school and tell the boys about their trade, what it is, what it produces, what future, what wages, what a boy should know, and in short, make as clear as he can with his trade as a text the answer to opposite suggestions.

Eighteen talks have already been given and masters and business men believe a profound impression for good will result.

TO AWAKEN THE MOTHER'S INFLUENCE

- And in an indirect way give her a general idea of the future possible callings of her boy.

What is said is printed in leaflet form and is taken home by the children. Being written for them the parents can easily understand, and when the mother reads the opinion of the leading men in each trade in our city, all of which will make clear the horrible future of her boy if he is inefficient, and the sure future, if he is able to fit himself, we hope the mother will not allow any little immediate gain to ruin her boy's future.

The curse of our city is that children can so easily earn money.

TO HELP THOSE ALREADY AT WORK

- To awaken a desire for better ability in themselves.
- To give voice to the wants of the workers educationally.
- To let them see in their own trade men that possess knowledge they never dreamed of.
- To create environment for the young workers by stimulating the educational interest of the older ones.

We propose to have lectures selected by unions and employers in each trade that will be entirely for that trade, but all lectures will be to show the workers what they might know, and the School Board have provided night classes and teachers for one class that can be organized.

We have now \$3,000 per year to pay expenses of bringing the lecturers here, and unions and vocations generally are taking an interest.

CHAPTER XIII: WIDER USE OF THE SCHOOL PLANT.

In recent years a movement for the wider use of the School Plant has taken the form of Evening Classes, Vacation Schools, Public Evening Lectures and Social and Recreation Centres. As these have a direct bearing upon industrial efficiency an example is given of each. Many other cities might be mentioned as carrying on similar work. The four places chosen are Buffalo, N.Y.; New York City, Rochester, N.Y. and Ottawa, Ont. Each represents some special feature.

SECTION 1: AT BUFFALO, N. Y.

CONTINUATION CLASSES.

A word first as to Evening Classes. The first use of the school plant, in addition to the ordinary day classes, is assigned to the holding of Evening Continuation Classes. The fact that a very large percentage of the pupils in the public schools leave before they have completed the full course of the Elementary School is a reason why every effort is made to let the school serve them at least in the evenings, after they have begun to work. To attract their attendance and keep their interest, such classes provide practical instruction in subjects of recognized value to the boys and girls themselves. Those who have given attention to the subject declare that the immediate returns to any city from classes of this nature will be very great and may approach in value, by any measure that can be applied, the returns from the regular High School Courses. The evening students have a definite end in following certain studies. The instruction they receive will be made use of at once in the occupations they follow. In that way they make real educational progress, as well as acquire industrial proficiency. The benefits of progress made in this way are less likely to be lost through forgetfulness or want of suitability in later years.

THE EVENING SCHOOLS.

The Evening Schools hold a place all their own. No other institution so completely meets the needs of the people at large. Each school is a civic centre, in the best sense of the word, where thousands go to satisfy the need they find most urgent in their daily lives. The year 1909-10 surpassed all former records, both as to attendance and effectiveness. In the fourteen Grammar and two High Schools 8,947 pupils were registered as compared with 7,874 the preceding year, a gain of 1,073. About 3,000 of these were under sixteen years; over 3,500 were between 16 and 21; and the balance, or nearly 3,000 were over 21. 2,500 were foreigners. Over 3,000 girls and women were registered and over

2,000 of these took domestic subjects. Never before, in the history of the city, has so abundant provision been made for those who are ambitious to improve themselves and increase their earning power. We have only to note the above figures to realize how eagerly the opportunity has been grasped. The cost per pupil, on basis of registration, was \$5.

The problem of Evening School work is the boy from 14 to 16 years of age. This class of pupils left the day school in the majority of cases because of lack of ability or interest. Regular grade work appeals to him no more at evening than at day school. To keep these boys profitably employed, vocational departments were opened in four schools and the experiment was made of forming a class in practical elementary science with the thought of giving the boys a broader outlook. So far the results are even better than expected.

Provision has been made for small groups of girls in sewing and millinery with adequate supervision. Greater interest, more and better work is the result. Pupils no longer come simply to get a dress made, or a hat trimmed, but are taught the art from the beginning and so are able to turn their instruction to practical benefit.

VACATION SCHOOLS.

The city of Buffalo in 1910 had no less than 12 Vacation Schools. The registration was 3,600 and the average daily attendance 2 687, or 75 per cent. The appropriation was \$2.08 per capita. The interest was sustained and the results were excellent. All the older children recognized the commodity value as well as the beauty value of the things which their hands fashioned. Most of them felt dimly, but pleasurably, the power which they were gaining. Perhaps none were conscious of the disciplinary value or realized that character was making fast while they were "developing motor-brain areas." The older girls were delighted to find that by skillful and painstaking work they might transform a half dollar's worth of material into a lace handkerchief valued at from \$5 to \$8; that in every department of needlework their careful workmanship enhanced the value of the material many fold.

SECTION 2: AT NEW YORK CITY.

FREE LECTURE COURSES.

Free lectures are provided in many cities. The following is a brief summary of what is done under the Department of Education in New York City:—

These courses cover about 100 lectures given in different sections of greater New York, generally in school buildings and such other institutions as the American Museum of Natural History. In some centres the lectures are given weekly; in others semi-weekly.

During the year there are provided a course of 11 lectures on American History and a course of 11 on American Geography. Those who attend 90 per

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cent of the course and pass examinations in January and June receive certificates from the Department. School children are not admitted.

The lecturers are paid about \$10 per lecture and expenses. Stereopticon, when required, is furnished by the Department.

The New York Public Library announces, in connection with above lectures, that a book on the subjects dealt with may be borrowed without charge by any resident of the city.

In visiting the Stuyvesant High School it was observed from conspicuous advertisements that this was one of the Lecture Centres. Upwards of a million of the people of New York attend these lectures, a good proportion of which are on scientific subjects. In some cases after the audience is dismissed a conference is held of those most interested, and points of difficulty are discussed. In this way many have been led to go on to a more systematic and educative part of practical science. The Principal of the Stuyvesant School, Mr. Von Nardroff, who has been a lecturer on the subject of Physics, stated that he believed no money spent by the School Board led to greater educational and cultural results than do those lectures.

SECTION 3: AT ROCHESTER, N.Y.

SOCIAL CENTRES.

At Rochester a movement was begun some years ago which culminated in the opening of the school buildings as Social Centres.

"The Social Centre was not to take the place of any existing institution, it was not to be a charitable medium for the service particularly of the poor; it was not to be a new kind of evening school; it was not to take the place of any church or other institution of moral uplift; it was not to serve as simply an 'improvement association' by which the people in one community should seek only the welfare of their district; it was not to be a 'Civic Reform' organization, pledged to some change in city or State or national administration; it was intended to be the restoration to its true place in social life of the public school, in order that through this extended use of the school building, might be developed the community interest and the neighbourly spirit."

PROVISION FOR RECREATION.

It was decided that the Social Centre should provide opportunities for physical activity by means of gymnasium equipment and direction, baths, etc.; opportunities for recreation, in addition to those which the gymnasium would offer, by the provision of various innocent table games; opportunities for intellectual activity by the provision of a library and reading room and by the giving of a lecture or an entertainment at least once a week. The more directly social service of the Centres was to be gained through the opportunities offered for the organization of self-governing clubs of men, of women, of boys and of girls.

THE DISCUSSION OF PUBLIC QUESTIONS.

The use of the Centres for free, untrammelled discussion of public questions was carefully considered and the fact was cited that the school extension committee had already gone over this matter and had passed a motion that "The committee should insist upon the free use of the school buildings chosen for neighbourhood meetings, even politics and religion not being tabooed." And this was decided as the rule that should prevail because such freedom was, of course, essential to the development of an institution "which shall serve the people in the city as the Little Red School House served the folks back home."

DIVISION OF TIME.

It was decided that the Social Centre should be open from 7.30 to 10.00 o'clock every evening in the week except Sunday. One evening was set apart for a general gathering of the men and women, boys and girls of the Centre. On this evening it was proposed that a lecture or entertainment, somewhat after the pattern of those which are provided in New York City, should be given.

The School Board should assume complete responsibility for the character of these entertainments. Like the lectures given in New York City, these general lectures were to cost not more than \$10 a piece in addition to the expenses of the speakers. Unlike the lectures given in New York, these were to be provided without expense to the city whenever they could be secured without imposition.

It was decided that Friday evening should be used as the evening for the general lecture or entertainment. The other five evenings of the week were to be divided between the men and boys, who should have three, and the women and girls who should have the other two. Tuesday, Thursday and Saturday were set apart for the use of the men and boys, Monday and Wednesday for the women and girls.

DIRECTORS AND VOLUNTARY CLUBS.

Directors were appointed for the various departments of the work. The Director was appointed to a position somewhat similar to that of the principal of a school, overseeing the various activities and being present whenever the building was open. In addition to the Director, an assistant was appointed in the person of a woman to take charge of the womens' and girls' activities of the Centre and serve as their club Director. Besides, a Director of the boys' clubs was appointed. His duties required him to be present three evenings each week, prepare programmes for the boys' organizations, help the debaters and other speakers from among the boys themselves in their work of preparation and guide them in the orderly conduct of their club meetings.

Various clubs were organized. These took the form of boys' clubs and girls' clubs, adult clubs for men and adult clubs for women. Clubs were

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organized for study as well as for games and play. Friday evening as a general evening was made the occasion of the coming together of all of the people in the Social Centre every week.

WIDE ACTIVITIES UNDER PRINCIPAL MOULTHROP.

The example of a school which was used in a very wide manner outside the regular day classes was that of the Washington Grammar School of which Col. S. P. Moulthrop was Principal. The plan of the school building itself had been worked out by the students of the Evening School and then worked out by the Architects for the final plans of the building itself. There are 64 rooms, 1,863 pupils in the day time and 1,432 pupils in the evening. The auditorium seats 1,800. Among the features of the school are:—

SWIMMING: There is a large swimming tank and shower bath. Swimming is taught during two afternoons a week for boys and two afternoons a week for girls. Every boy above the 4th grade has swimming.

DENTAL CLINIC: There is a fine equipment for this work presented by a friend of the school.

MEDICAL INSPECTION: The doctor and supervisor keep a close observation on all the children. Physico-psychological records of these students are taken by the teachers.

DOMESTIC SCIENCE: Girls prepare meals in the course of lessons and ask their mothers to come and eat with them. Forty-four teachers take their meals in this department, the girls serving the tables.

LIBRARY: There is an excellent library which is taken charge of by the Association of Graduates of the School, who come back three evenings a week, have meetings and enjoy the evening school. A number of them take care of the library. Last year 2,000 books were taken out by the evening pupils and not one lost.

AUDITORIUM: Open in the evenings for gatherings at which patriotic songs are sung, concerts held, etc., etc.

TO SERVE CIVIC ENDS.

The experience at Rochester, notwithstanding some difficulties that arose, points to the fact that the wider use of the school plant is practicable, and desirable for social development and improvement and also for the promotion of strictly educational work.

A good feature of the Social Centre work is the awakening of interest and the development of ability not merely in the discussion but in the understanding of and participation in civic work which is concerned with the efficient administration of streets, water supply, sewerage system, lighting, transportation, etc. The school buildings, which are the property of the people, may with advantage be used by the people without any interference with the primary purposes of the school in the education of the children of the locality.

SECTION 4: AT OTTAWA, ONT.

LARGER USE OF BUILDINGS AND EQUIPMENT.

In his Annual Report (1912) Dr. J. H. Putman, Inspector of Public Schools, says:

"We have public school buildings and equipment worth a million dollars, all bought and paid for by the public. The buildings are kept in repair, heated and cleaned by public taxes. We can scarcely think of any other public utility which is in a more real sense the property of the people than a public school. These schools are built and maintained primarily for the education of young children, but those who would restrict the use of schools to this purpose alone take a very narrow view of their possibilities. Time was when people looked upon a school merely as a place where children learned the three R's. The more modern and truer conception of a school is that it should be a social agency primarily to plan and control profitable experiences for children, but beyond that a rallying centre for the educational life of the community.

"The schools are used barely 200 days a year and for five hours each day. They are heated and cared for during the whole year. It does seem that their usefulness in educating the people might be greatly extended if there could be in them public lectures and public meetings for the discussion of public topics. It does seem that evening classes, literary societies, reading rooms and debating clubs in the schools might be a means of doing much for the thousands of young men and women who have left school but have a desire for self-improvement.

"Perhaps I may take the public into my confidence by telling them that I have proposed to the Management Committee such a radical innovation as the installing in our schools one or more Kinemacolour machines for instruction and entertainment, allowing school children to attend exhibitions in the late afternoons and giving open entertainments to the older members of the family in the evenings.

THE USE OF MOVING PICTURES SUGGESTED.

"I see that Mr. Edison proposes to so perfect moving pictures that they will transform the modern school and give a complete education to children who will have nothing to do except watch pictures. Mr. Edison is a great scientist but if he really believes what he is reported to have said, he knows very little about the real problems of education. Human beings are not educated by what they see but through what they do. Impression without expression has no value, and a child might spend his time watching the most perfect and elaborate moving pictures that it is possible to produce and yet make no progress toward real education.

"On the other hand no person who has had experience in teaching children can watch such Kinemacolour exhibitions as the Coronation of King George V. or the Indian Durbar without realizing that the moving picture might be a great

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aid in teaching, especially with such subjects as geography and history. Already New York and Chicago in America, London, and other European cities are using the moving picture as an aid in school work.

* * * * *

"The moving picture has come to stay. We may put it in the school, control the character of the pictures and satisfy the child's craving for such entertainment while leaving him in his own school and under the supervision of his own teacher.

"We may in some cases prevent him from witnessing such shows as are now being given in amusement halls, but sooner or later he will satisfy his natural craving for colour and movement. In hundreds of cases our public school children are now going at night to badly ventilated halls, listening to coarse jokes and vulgar songs, while watching picture films which perhaps barely escaped the disapproval of the public censor. What shall our policy be?"

MOVING PICTURES TO ATTRACT AND INSTRUCT.

At the Industrial Art School, at Zurich, the Director had a suitable room fitted up for the use of Moving Pictures. He used them to illustrate scenes, processes and conditions for the benefit of the students. He also employed them to interest public gatherings in subjects that were connected with the School and its progress and the development of good taste and artistic ability. A firm in Paris was making films for the particular purpose of their being used for educational ends.

The Commission found similar use being made of a room fitted for the purpose at the Normal School at Fitchburg, Mass.

The use of Moving Pictures for educational purposes in connection with Industrial Training was brought before the Commission at London, Ont., by the testimony of Mr. Frank Leonard. Many scenes in connection with raw materials, transportation and manufacturing processes might be provided to instruct and entertain at the same time. The public response to the opportunity which has been provided in Moving Picture halls reveals the existence of an appetite and taste. It becomes the education authorities to see that these are improved by good food for the eyes and mind.

The use of Moving Pictures to illustrate some interesting features of industrial processes and manufacturing plants might be a means of attracting young people to the classes for training until the intrinsic value of the training became recognized and appealed to the higher motives.

It would be worth while in Canada to devote most of one evening a week to the recreational and entertaining side of education in connection with the movement for Industrial Training and Technical Education. The lantern with slides and the reflectograph are already in use in some Colleges. Consideration of the means, best suited to attract the attendance of those to be served, should be in the mind of those who are planning a system or method for the further education of those who have already left school at fourteen.

CHAPTER XIV: COMPULSORY ATTENDANCE AT CONTINUATION CLASSES AFTER FOURTEEN.

SECTION 1: THE SITUATION IN GERMANY.

Practically everybody with whom the Commission discussed the question in Germany, is convinced that voluntary Continuation Schools will not meet all the educational needs of modern communities. Employers may not allow their apprentices to attend the Continuation School unless it be in the evening, when they are too fatigued to profit fully by the instruction. Under those conditions the efficiency and satisfaction in work which are so necessary an influence in training for citizenship are out of the question, except for the vigorous and ambitious; and they are not the boys and girls who most require the educational supervision and help. The large majority of the school men in Germany are in favour of compulsory attendance at Continuation Schools carried on during week days and closing before seven o'clock in the evening. Most states of Germany have such schools in the large cities.

Where the attendance is compulsory by law it was learned, in the cases enquired into, that during the first two years there was considerable opposition on the part of numbers of employers, considerable indifference on the part of numbers of parents and considerable unwillingness on the part of numbers of pupils. After two years of operation the general opinion was that attendance at Continuation Classes is of such a wholesome and beneficial character that it is accepted as a regular part of the life of the community and that even if the compulsory requirement were withdrawn the attendance would continue and include the larger part of the youth of the locality.

BERLIN AND PRUSSIA.

In Berlin the attendance at the Continuation Schools is obligatory from the fourteenth to the seventeenth year, that is to say, three years of 6 hours per week. The hours for instruction generally fall twice a week between 5 and 8 o'clock p.m. In some cases a whole afternoon is devoted to the Continuation Class.

Statistics show that about 59% of the boy workers in Prussia attend some Continuation School. The percentage of girls who attend is very much less. The introduction of compulsion has been gradually and greatly increasing the percentage who attend, but since the law applies only to the larger places, a large proportion of the young people in the Kingdom are not affected by it.

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NOTES FROM THE VISIT TO CHEMNITZ.

Since 1873 in Saxony it has been necessary for boys in all communities to attend the Continuation School from the ages of 14 to 17 years, at least two hours per week. In Chemnitz four hours per week have been required since that time. The boys from some trades are now required to attend five hours per week. The expectation is that shortly it will become necessary for the boys in all trades to give this amount of time.

At the present time public opinion is strongly in favour of the Continuation Schools. The Secretary gave it as his opinion that if the compulsory law were removed now the boys would still continue to attend, either voluntarily or by request of their parents or employers. Formerly employers were strongly opposed to compulsory attendance at Continuation Classes, but now they are strongly in favour of them.

At the present time there is no Sunday or evening instruction for apprentices between the ages of 14 and 17. These all come in the day time. They have abandoned the previous system of giving the boys two periods of two hours per week and now they give them the instruction in one continuous session of four or five hours. The boys usually go in the morning, before they go to work at all, and so are fresh.

In Saxony the compulsory attendance applies to all communities, whereas in Prussia it applies only to towns of over 10,000 inhabitants.

The Secretary thought that public support of all education had been increased from the contact of so many workers with the Continuation Schools. The schools offer evening voluntary classes for journeymen.

NOTES FROM THE VISIT TO DRESDEN.

Dr. Lyon, Oberschulrat, said that the Continuation Schools were really introduced by the Government and not by the people, as employers or employees. There was opposition from the employers when compulsory attendance was required, but it disappeared in about a year. He favored the school workshop, although the Continuation Schools in Dresden have no workshops and not very much tool or machine equipment. Some Continuation School work was initiated by the different Trades Guilds, but attendance was made compulsory by the Government.

NOTES FROM THE VISIT TO BREMEN.

Dr. Oebrechts, a member of the Senate in Bremen, has been largely responsible for the establishment and improvement of the school system in that city.

Bremen is a free city and the citizens are very independent. Therefore they were reluctant to establish anything which seemed like a trespass on personal freedom, such as the compulsory Continuation Schools. The large employers were opposed to it because it took the apprentices out of the factories in working hours. The smaller employers were more in favor of it because it gave their apprentices

greater intelligence, and they could thus compete with larger factories. The real movement for compulsory attendance came from the Senate of Bremen, and it actually was a little ahead of the public sentiment.

Compulsory attendance in the daytime had been in force 2 years at the time of our visit, and now there is very little opposition to it. It was for the benefit of the whole community. Workmen were strongly in favor of it.

Dr. Oebrichs' advice to Canada as a new country was to establish compulsory attendance Continuation Schools from the first, if possible.

BADEN.

In the Grand Duchy of Baden attendance at Continuation Schools has been compulsory since 1874. The employers generally are as friendly to the Continuation Schools as are the parents of the children.

Regierungsrat Dr. Meir expressed the opinion that a compulsory requirement for attendance at Continuation Classes was necessary for at least a full generation of time. The compulsory law of Baden is applicable to the whole community, including the rural districts. The minimum of attendance is 3 hours per week. In most cases the instruction is given by the ordinary teachers, which Dr. Meir thinks not as satisfactory as though it were more professional and practical. Much stress is laid upon the teaching of the duties of citizenship.

WURTTENBERG.

In the Kingdom of Wurttemberg the law is now general requiring all boys who are working to attend Continuation Classes until their 18th year. The compulsory law, as passed in 1909, was for one year of attendance only; next year the law extended the period to 2 years of attendance, and in 1911 it was made 3 years. Regierungsrat Dr. Hartmann is of the opinion that the compulsory law will be supported by public opinion and maintained.

BAVARIA.

The compulsory attendance law prevails. The interest taken in the work and the support accorded to the Continuation Schools in Munich by the employers and trade association of masters, workmen and of assistants, leads one to the conclusion that the ultimate influence for the schools will not be compulsion alone, but their intelligent sympathy and collaboration. That is the opinion expressed by Mr. H. A. Clay in his pamphlet prepared for the Board of Education in England, *Compulsory Continuation Schools in Germany*. The following are quotations from that Report, indicating the attitude of representative societies:

Munich Society of Printers (Verein Munchener Buchdruckereibesitzer), representing proprietors of printing works:

"The new organization of the Technical Continuation Schools has according to our observations affected very advantageously the school attendance of the pupils and their desire to learn. In this respect very few complaints have been made, and they were only concerning voluntary

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pupils who wished to enjoy the technical instruction, but did not submit readily to the discipline. The moral effect is extremely favourable. In particular the technical teaching was a necessity, for in the workshops this cannot be carried out in the requisite degree".

The Catholic "Hansa" Society of Merchants (Katholischer Kaufmannischer Verein "Hansa"):

"Nowadays when there are such great demands on the principal, it is scarcely possible for him any longer to train his young clerks in the way required by their interests and those of the profession in general. This is especially the case with the book-keeping which is particularly neglected, so that many a young man goes out into the world at the end of his indentures without a knowledge of the simplest principles of this subject and of correspondence; indeed, he scarcely understands the difference between debit and credit. . . . We do not hesitate to say to-day that many of our boys have proved unfounded, and that some of them were based on misconceptions. . . . It is not easy to give an opinion as to the effect of the school on character. We are, however, firmly convinced that the doing away with the evening instruction is a great advantage, and the moral gain far outweighs any objections to the early morning hours."

Munich Society of Lithographers (Proprietors)* (Verein Munchener Lithographie-und Steindruckereibesitzer):

"It cannot be sufficiently emphasized how great a need the Continuation School meets, and how desirable it is that this view should spread and deepen among the employers. It must be stated that the compulsory pupils attend the instruction with the greatest zeal and follow the lectures and practical exercises with interest and diligence. This is also particularly apparent from the large attendance of the so-called voluntary pupils. There is no question that the school, moreover, exerts an excellent influence on the moral behaviour of the boys, though there must naturally be exceptions here and there".

The Society of Shoemakers wrote:—

"A number of employers have not sufficient new work to enable them to train their apprentices so that at the end of their time they can complete the prescribed example of work. This shows that it is just the practical instruction which is of the utmost importance, for it is to this that two-thirds of the apprentices owe their success in qualifying. The shoemakers attach great value to the technical education. This is shown by the fact that several masters voluntarily send their apprentices a year and even longer to the school".

The Munich Society of Watchmakers said:—

"The establishing of the workshops increases the satisfaction in attending the school, and gives the opportunity of judging of the progress of the apprenticeship. The practical value cannot be too highly prized."

The German Society of Metalworkers replied:—

"The chief share of the success is due to the technical training. There can be no doubt that the practical teaching, hand in hand with the theoretical, can assure a better general training than a longer apprenticeship in the workshop without theoretical help. The loss of time which the master suffers through the teaching during the day is compensated many times over by what the pupil learns during school as it is now organized".

Mr. Clay says further:—"Inquiries made of a large firm of lithographers showed that there is a very decided feeling in favour of compulsory attendance at the Technical Continuation School, on the ground, among others, that the larger the firm the more likely is the training of the apprentice in the workshop to be one-sided. The head of the Munich Union of Printers (Proprietors) pointed out that each firm has its special line of work, and that thus it is impossible without the Continuation School, for the apprentice to get a survey of the whole scope of his trade. He is of opinion that the majority of his firms would not let the matter drop if there were no compulsion, for his society had pressed for the classes to coincide with the period of apprenticeship. Not much would be possible without the associations of employers, and, though at first many made

*Lithography is one of the largest industries of Munich.

difficulties, they, as well as the workmen's unions, are now all very much in favour of the Continuation Schools. The loss of time and disturbance of routine are not serious."

The following are further quotations from the excellent pamphlet by Mr. H. A. Clay, already referred to:

ATTITUDE OF EMPLOYERS AND PARENTS.

After this general survey of the activity of the evening schools, we may consider their relation to the employers, or rather the attitude of the employers to them. As was to be expected, when compulsion first was brought in there was some amount of hostility and even indirect resistance. There was the loss of the boys' time to create a feeling of dislike, and the annoyance at being obliged by law to pay the school fees, where these are charged, moderate as they are. As a result, many boys at first lost their employment, though the Labour Bureau was able to re-place some of them. Others again deducted the amount of the school fees from the wages earned, or made systematic difficulties as to sending their boys to the classes. But within less than five years one can say that the initial opposition has died away.

Apart from this, the employers are in close connection with the technical classes, through their advisory school committees. Thus there are expert groups (*Fachschulkommissionen*) of mechanics, masons, photographers, grocers, butchers, and hairdressers, for instance, representing every imaginable trade. These have the right to and do visit the classes, and give valuable opinions as to the direction of the theoretical and practical teaching.

The parents—who are the third of the three factors, parents, school and employers—have presented no serious difficulty. Poverty only too often compels them to place their sons in unskilled work to earn an immediate wage. But they regard the compulsory attendance as a survival or continuation of the elementary school time. They are pleased to feel their boys are learning, and are ready to complain when the employer prevents them from going to the classes or when he does not teach them in the workshop all that might be expected.

It is here we see the value of a strong authority with a fixed policy. Experience shows that the boys who most needed it did not attend the Continuation Schools, and that, as in England, of those who did join, a large number fell out by the middle of each session. The Secretary of the *Handwerkerkammer* puts it, "without compulsion there are no Continuation Schools." The German looks on his compulsory service in the army as the best school for youth; he feels that the discipline has made a man of him, and he believes therefore in discipline for those who are not yet of age for the army, the discipline of attending classes that bear on the work of life, and of being bound or indentured to a fixed employment for a definite term of years.

DR. KERSCHENSTEINER'S OPINION.

The information furnished by Dr. Kerschesteiner indicates his opinion as being strongly in favour of attendance being made compulsory, particularly to prevent the neglect of education by the indifferent and those who are not ambitious. He says:

People tell us industry requires thousands of hands fit to perform the same manipulation with the same unerring skill hour by hour, month by month, year by year. I fully believe that industry does require them. Division of labour is the vital element of industry. But industry is not the aim of human society. The aim of society is the increase of justice and culture. And if industry permanently continues to recklessly disregard this aim it becomes a danger, not only for the state, but also, in the end, for itself as well. A democratic or even a constitutional state that is ruled exclusively by the lust of gain, by money and the machine slaves that money buys, is doomed to inevitable ruin, as soon as the natural riches of the soil become exhausted and the population becomes too dense.

There is no escape from this natural fate of industry but state intervention, not too long postponed, to supplement the one-sided education afforded by industry, trade and traffic. It is in fact an entirely new duty that has arisen for the community since the economic revolutions of the last century. It arose not only in the interests of industry but in the most vital interests of the community itself. It is the imperative duty of the state to create school organizations which deal with the trade-training of boys and girls, which enter into the question with the utmost thoroughness, enlarging and deepening it, and thereby awakening in boys and girls many-sided capacity for work and a living joy in work.

It is a most important thing for a democratic country, or even a constitutional State like Germany, to have this new type of school which Germans call simply Continuation Schools. The conviction of their necessity for the whole life of the state has taken possession of the entire

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population more and more during the last twenty years. In South Germany there is no city or town, however small, without one such school, at least for all boys. In North Germany the great industrial town of Essen is the only larger town in which such a school is wanting. These schools are compulsory in Bavaria, Württemberg, Saxony, Baden, and Hesse, both for town and country population, up to the age of sixteen, seventeen, or eighteen. They are not everywhere of equal educational value. There are still many town executives that have not yet been able to relinquish the old traditions out of which the schools arose as places for repetition of elementary school work. Not all those who are called upon to give judgment in this matter are thus far penetrated by the deep conviction that they have to deal with an independent school organism, requiring exactly the same budget, the same solicitude, and the same possibilities of expansion, as the primary schools. But everywhere the organizations are progressing, everywhere the representatives of industry and trade are, with few exceptions, beginning to realize that this new form of school can prove a blessing whenever its inner organization adapts itself to the calling of the boy or girl.

SECTION 2: THE SITUATION IN ENGLAND.

The Evening Schools of England have constituted an influential part of the educational effort for many years. They include Continuation classes in general school subjects, and classes with Technical, Commercial and Domestic Economy courses. According to the annual report (1908-9) of the Education Committee of Manchester, in nine of the more important towns (Liverpool, Manchester, Birmingham, Leeds, Sheffield, Bradford, Newcastle, Nottingham and Salford), with a population in 1907-8 of 3,974,012, there were 105,503 individual students attending Evening Classes.

CONSIDERATION BY THE CONSULTATIVE COMMITTEE.

The question of compulsory attendance has been considered by the Consultative Committee, who issued a most comprehensive and valuable Report on the subject. While it deprecates the quoting as its conclusions the short summary of its Principal Recommendations, that objection would be applicable to the use of such a quotation for other than educational purposes in England. For the enlightenment of Canadians, and with due appreciation of the indebtedness of this Commission for dependable and appropriate information which has already been quoted, some paragraphs from the Short Summary of Principal Recommendations as it appears in the Committee's Report are submitted.

Before those are given, some extracts from other parts of the Report are presented.

The main purpose of the Continuation Schools is to provide, at convenient hours and under conditions compatible with the physical welfare of the pupils, further instruction for those who have entered upon the practical work of life, whether as apprentices or as independent wage earners, or in the duties of the home. It endeavours to meet the needs of both sexes. It presupposes a sufficient basis of elementary education, but, where that is defective, attempts to supply it. The lower age limit of its pupils varies, in the main, according to the age at which, under differing local by laws, boys and girls are released from compulsory attendance at the Day Schools. In the more advanced stages of its work, the Continuation School thus falls into two main, though not clearly demarcated, divisions—the Elementary and the Advanced. Its function is twofold: to prepare its pupils for the efficient discharge of the duties of citizenship, and to increase their adaptability and skill in bread-winning occupations.

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The first point that arises is whether these children are fitted when they leave the Day School to be transferred to their various callings or occupations without further school education.

The simplest way to approach the problem is to consider what happens to those children who leave the Day School at an early age and attend no further classes of any sort. It is some times urged that children who are preparing to earn their living either by purely manual labour, or by occupations in which manual labour holds at least a prominent part, are injuring their chances of industrial efficiency by remaining too long at their books. What they need, it is said, is early contact with the realities of the mill, the shop, or the desk. Thus, it is argued, did their fathers learn their trade and it is still the best method of training. A fatal objection to this argument however, is found in the fundamental changes of the conditions of industry in recent years of which the most important are the decay of the old system of apprenticeship, and the increasing influence of scientific knowledge upon trade conditions. In earlier days a boy who exchanged school for apprenticeship did not cease his education or his general training. Under the system at its best he was still definitely under tuition, and that of a fairly general and unspecialized kind. Above all, he was under continued discipline.

* * * * *

In no country have Evening Schools and Classes played a more important part in popular education than in England and Wales. For more than two generations they attempted to supply the defects of a wholly insufficient provision of Elementary Day Schools. They supplied the first beginnings of a system of technical instruction. They have been intimately connected with the social and economic ideals of the skilled workers. They have given scope to individual energy and have helped in training the power of voluntary organization. On the other hand, they have been little more than an appendage to the more highly organized system of Elementary Day Schools. They have never yet been worked into a coherent system of national training. Their courses of instruction lack discipline because many of their pupils had no sound foundation of elementary knowledge.

It may truly be said, therefore, that the Evening Schools in England and Wales have offered useful opportunities to many of those whose force of character and physical vigour have enabled them to fight their way through difficulties to positions of responsibility and leadership. But they have failed, in great measure, to touch the less strenuous or the idle, and they have been too little adjusted to the needs of the rank and file, especially during the critical years of adolescence.

Thus the modern developments of the Continuation School in Germany have been closely connected with the work of the Sunday Schools. In many parts of Germany Continuation Schools still meet on Sunday, though there is a growing tendency to confine the more technical classes to other days of the week. It is not too much to say, however, that without the free use of the early hours of Sunday morning for purposes of secular or even technical instruction, the German system of Continuation Schools, which is now exerting a decisive influence upon educational opinion in France, Switzerland, and America as well as in Great Britain, could never have so quickly attained to its present development.

SOME OF THE CONSULTATIVE COMMITTEE'S CONCLUSIONS.

"The record of the struggles of the Evening Schools points to the conclusion that this branch of national education can dispense with neither the self-sacrificing energy of individuals nor with the co-ordinating authority of the State. When the latter is lacking, we find an immense waste of effort in organization and a faltering indecision in educational aims. But without the hearty co-operation of volunteer helpers and without determination on the part of the students to battle against difficulties and to overcome them, Government grants and official regulations produce but disappointing results."

The paragraphs from the *Short Summary of Principal Recommendations* which deal directly with compulsory attendance are as follows:—

"Inasmuch as the foundations of a successful system of Continuation Schools must be laid in the Day School, the Committee recommend that increased attention should be given to the connection between the Continuation School and the Public Elementary School, in order that there may be less discontinuity of attendance, and that by the improved equipment of the pupils increased

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expenditure upon Continuation Schools may be fully remunerative. With this object in view, the education given in the Day School should be improved by reducing the size of classes, by increasing the proportion of qualified teachers, by introducing more manual work (including domestic subjects in the case of girls), and by improving the regularity of attendance.

* * * * *

"Junior Employment Registries should be established to give skilled advice to parents, managers, and teachers, in the selection of suitable occupations for the children between the time when they leave the Day School and their 17th birthday, and in the children's choice of such further courses of instruction as will help in qualifying for future skilled employment. These registries should be subsidized from public funds and should be closely related to any system of Adult Labour Bureaux which may hereafter be established.

* * * * *

"It should be lawful for the Education Authority of any county borough to make by-laws (subject to confirmation by the Board of Education) for requiring the attendance at Continuation Classes, to an age to be fixed by the by-laws, but not exceeding 17 years, of any young persons resident or working in their district who are not otherwise receiving a suitable education. By-laws should be distinct for boys and girls. It should be left to the discretion of the Local Education Authority (a) to frame by-laws (1) for one sex only, (2) for part or parts of its district, (3) for those engaged in particular trades or occupations in that district, and (b) to determine the age or ages up to which the by-laws should be applicable within the limit of 17 years of age. No young persons should be required by such by-law to attend a Continuation Class held more than 2 miles from his or her place of residence.

* * * * *

"It should be the statutory duty of every employer of any young person under 17 years of age (a) to enable him or her to attend Continuation Classes for such period of time and at such hours as may be required by the by-laws of the Local Education Authority of the district in which such young person either works or resides, and (b) to supply the names of all such persons to the Local Authority on demand. Further, in order to secure the regular attendance of pupils at Continuation Schools in areas where such attendance is made compulsory by by-law, all employers, in such trades or parts of the district as the by-law may specify, should be forbidden under penalty to employ or continue to employ any young person under 17 years of age who failed periodically to produce a card attesting his or her attendance at Continuation Classes in conformity with the terms of the local by-law.

"The Local Education Authority should have power to fix, after consultation with representatives of the employers and of the workpeople in each trade, the hours and seasons at which the compulsory Continuation Classes should be held. With a view to protecting young people from over-strain, the Local Edu-

cation Authority should have the further power of prescribing the limit of hours which may not be exceeded in any day or week, as the case may be, by employment and further education combined. Such restriction should be adjusted to the different conditions of the various trades and callings concerned."

SECTION 3: THE SITUATION IN SCOTLAND.

Under the Education (Scotland) Act of 1908 authority is given to municipalities to enact by-laws requiring attendance. When the Commission was in Scotland (1911) as far as could be learned the Act had not been actually put into operation, although by-laws had been made in two places. The following are paragraphs of the Act in question:

"(1) Without prejudice to any other power of a school board to provide instruction in continuation classes, it shall be the duty of a school board to make suitable provision of continuation classes for the further instruction of young persons above the age of fourteen with reference to the crafts and industries practised in the district (including agriculture if so practised and the domestic arts), or to such other crafts and industries as the school board, with the consent of the Department, may select, and also for their instruction in the English language and literature, and in Gaelic-speaking districts, if the school board so resolve, in the Gaelic language and literature. It shall also be their duty to make provision for their instruction in the laws of health and to afford opportunity for suitable physical training.

"(2) If it is represented to the Department on the petition of not less than ten ratepayers of the district that a school board are persistently failing in their duty under the foregoing subsection, the Department shall cause inquiry to be made and call upon the board to institute such continuation classes as appear to the Department to be expedient, and, failing compliance, may withhold or reduce any of the grants in use to be made to the board.

"(3) It shall be lawful for a school board from time to time to make, vary, and revoke bylaws for requiring the attendance at continuation classes, until such age, not exceeding seventeen years, as may be specified in the bylaws, of young persons above the age of fourteen years within their district who are not otherwise receiving a suitable education, or are not specially exempted by the school board from the operation of the bylaws, and that at such times and for such periods as may in such bylaws be specified. Such bylaws may also require all persons within the district having in regular employment any young person to whom such bylaws apply, to notify the same to the board at times specified in the bylaws, with particulars as to the hours during which the young person is employed by them:

Provided that no young person shall be required to attend a continuation class held beyond two miles measured along the nearest road from the residence of such young person.

"(5) If any person fails to notify the school board in terms of any such bylaws in regard to young persons employed by him, or knowingly employs a young person at any time when his attendance is by any such bylaw required at a continuation class, or for a number of hours which, when added to the time required under any such bylaw to be spent at a continuation class, causes the hours of employment and the time so spent, taken together, to exceed in any day or week, as the case may be, the period of employment permitted for such young person by any Act of Parliament, he shall be liable on summary conviction to a penalty not exceeding twenty shillings, or in case of a second or subsequent offence, whether relating to the same or another young person, not exceeding five pounds.

"(6) If any parent of a young person by wilful default, or by habitually neglecting to exercise due care, has conducted to the commission of an offence under the immediately preceding subsection or otherwise, through failure on the part of the young person to attend a continuation class as required in any such bylaw, he shall be liable on summary conviction to the like penalties as aforesaid."

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SECTION 4: THE SITUATION IN THE UNITED STATES.**OHIO.**

The two most significant pieces of legislation with reference to Vocational Education in 1910-11 were the innovations introduced into the laws of Ohio and Wisconsin. In both these commonwealths, the emphasis has been laid upon the encouragement of part-time and Continuation Schools; in both the approach has been partly through an attempt to claim by law a portion of the working day of the adolescent for after-training at the expense of the public.

In 1910, Ohio, without any previous legislation on the subject, injected a provision for part-time and continuation education into the attendance laws of the State. (House Bill 452—Ohio Session Laws 1910). No state aid is given to vocational training of any kind and there is no State Board of Education for the administration of either general or practical training. The Ohio statute, which was the first enacted in this country for the compulsory part-time schooling of those who are engaged in wage-earning occupations, required the attendance at school of all those under 16 years of age who are not able to meet a test for fifth-year pupils in reading, spelling, writing, English, grammar, geography and arithmetic. Those who have satisfactorily completed the eighth year of the common schools but are not regularly employed are required to attend the regular schools until they secure employment or have reached their seventeenth birthday. Whether or not a town or city shall establish part-time classes for those who have gone to work is left as a referendum to the Board of Education of the community. In school districts where no part-time day classes are provided all those fourteen years of age who have accepted regular employment after meeting the fifth grade test either in class or by examination are exempt from further school attendance; but wherever the Board of Education provides part-time day classes for the instruction of youths over fourteen years of age who have taken employment, attendance by such pupils upon this instruction is obligatory until they have either completed the eighth grade of the common schools or reached their seventeenth birthday.

WISCONSIN.

As the result of the recommendations of the Wisconsin Commission on Industrial Education, 1910, laws were passed in 1911 in which the responsibility of the State for the training of all adolescents up to the age of sixteen, whether they remain in school or go to work, is asserted; the State taking complete control educationally, so to speak, of the child from his seventh to his sixteenth year.

No child under sixteen is permitted to work at any occupation hazardous to body, health or character. Every normal child is required to attend regularly the public school, or other equivalent school, from the seventh to the fourteenth year. Between fourteen and sixteen years of age there is an alternative;

every child shall continue to attend the common school faithfully or, upon obtaining a definite permit from the Commission of Labour, a truancy officer, or the judge of a state, county, or municipal court, the child may enter upon a definitely specified useful occupation, working thereat not more than 48 hours per week, including five hours per week to be spent in the industrial school. If he discontinues the permitted occupation at any time he must return at once to the public school and the employer must return the permit for cancellation.

Every child in Wisconsin between fourteen and sixteen years of age, who, under a special permit enters upon some useful employment, must go to an industrial, commercial, continuation or evening school for five hours each week, the employer continuing the wages during those hours, the attendance upon school being for such hours, and at such places, as the local Board of Education prescribes.

THE CINCINNATI, OHIO, COMPULSORY EDUCATION LAW.

The Compulsory Education Law, which went into effect in May, 1910, provides that all children not regularly employed must remain in school until they are sixteen years of age. In order to be employed it is necessary for them to get "Certificates to Work" from the Superintendent of Schools in the school district in which they are employed. The law expressly provides that certificates are to be given only to youths, between 14 and 16 years of age, who have completed the fifth grade.

In order to get a certificate, pupils must bring with them to the Superintendent of Schools' office:

1st. A school record properly filled out and signed by their teacher or principal giving their (1) name, (2) date of birth, (3) residence, (4) grade (year in the course), (5) standing in their studies and general conduct, (6) number of weeks in attendance in the year previous to the date of applying for the school record.

2nd. A birth record duly attested: either a copy of the baptismal or birth certificate from a church, or the birth record from the City Health Department, or the affidavit of the parent or guardian made in person at the office issuing the certificate.

SECTION 5: THE SITUATION IN ONTARIO.

The following is a synopsis of the "School Attendance Adolescent Act" as published in Bulletin No. 2 by the Department of Education for Ontario:

JURISDICTION OF THE BOARDS.

(1) The jurisdiction of the Boards which possess the power of enforcing compulsory attendance under this Act is as follows:

Schools and classes of the High School grade are under the Boards of High School Trustees, the Boards of Education, and Continuation School Boards of

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urban Continuation School districts; and schools and classes provided for under *The Industrial Education Act*, that is, industrial, technical, and art schools and classes and commercial schools and classes, are under the Advisory Industrial and Commercial Committees respectively.

(2) Schools and classes of the Public School grade are under the Boards of Education, and urban Public and Separate School Boards.

LOCAL OPTION.

As the establishment of schools under this Act limits the control by the parent or guardian and the employer over the adolescent, and as it might involve a large expenditure by the ratepayers, the Act provides that no classes shall be established under it without an opportunity being given to the ratepayers for passing judgment on any proposed by-law.

The provisions are as follows:

(1) The by-laws must be passed by the Board at a special meeting, after due public notice of the meeting and the object thereof has been given by advertisement. Under this provision, a ratepayer may bring his views before his representatives on the School Board and so indirectly control the result.

(2) If within thirty days after the passing of the by-law under the Act, ten per cent of the electors of the municipality petition the Council, praying that the by-law shall be submitted to the electors, the Council shall do so, not later than the next general municipal election. Under this provision, the ratepayer may directly control the result.

BY-LAWS.

Under the Act, the Board has full discretionary powers which it is expected to exercise in accordance with the needs and capabilities of the locality.

The Board may provide compulsory attendance at the classes or schools, either established by the Board or at some other school in the municipality, of every adolescent who is not exempt under the by-law, provided, however, no child of the supporter of a Roman Catholic Separate School shall be required to attend any of the classes of a Public School.

It may provide courses of study and appoint teachers and instructors, and, in addition to the regular day classes, it may also establish and require attendance at special day and evening classes, including special classes for either sex or for both, and for those engaged in particular trades or other occupations. It may fix the seasons of the year and the number of hours in each day and in each week for the compulsory attendance.

And further, in accordance with the object of *The Industrial Education Act*, the details of the courses for those engaged in trades or like occupations are to be settled by the Advisory Industrial Committee and the details of the Commercial course by the Advisory Commercial Committee.

The Classes provided may, accordingly, be:

- (1) The ordinary Day School Classes;
- (2) Ordinary Evening Classes; and

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(3) Other Day and Evening Classes which employees shall attend at certain seasons for a certain number of days in each week and of hours in each day as may be determined by the by-laws.

The Act also provides for the exemption from attendance of individuals or classes of individuals who are so provided for in the Act or the by-laws.

DUTIES OF PARENTS AND GUARDIANS AND OF EMPLOYERS.

Under the Act, the employer is obliged to give notice to the Board of the names of the adolescents in his employment and the hours which they work for him. He is also obliged to release the adolescent for the number of hours during which he may be required to attend the day classes provided for him by the Board, with the provision that the total daily number of hours of employment and of attendance at compulsory classes shall together not exceed the total numbers of hours during which the adolescent may be lawfully employed.

The parent or guardian is also required to see that the adolescent attends the classes provided for him.

In the case of disregard of the provisions of the Act, the employer or parent or guardian incurs a penalty not exceeding \$5 for the first offence and not exceeding \$25 in the case of the second offence.

POWERS AND DUTIES OF TRUANT OFFICERS.

For the purpose of enforcing the by-laws, the Truant Officer appointed under *The Truancy Act* possesses the power and shall perform the duties enforced and imposed upon him by that Act.

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